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The Mathematical Association of America  
1529 Eighteenth Street, NW  
Washington, DC 20036

# FOCUS

THE NEWSLETTER OF THE MATHEMATICAL ASSOCIATION OF AMERICA

## University of Rochester Eliminates Ph.D. Program

*Keith Devlin*

In what some believe may be the first of a number of similar actions at universities across the nation, the University of Rochester will stop admitting students to its Ph.D. program in mathematics this fall, along with the Ph.D. programs in chemical engineering, linguistics, and comparative literature. At the same time, the graduate programs in mechanical engineering, history, philosophy, and earth and environmental science will be cut back significantly. The university currently has twenty-five Ph.D. programs in arts, sciences, and engineering.

No faculty layoffs are to take place; reductions will be by attrition, possibly with some retirement incentives. Cutbacks in some programs

were expected. The university's new president, Thomas Jackson, had pointed out that the institution has substantially more Ph.D. programs than any other comparable research university. Such numbers were thought to be unsustainable.

Over the summer, the president, provost, and deans met individually with about seventy-five faculty members, at least two from each department, taking their conclusions to the Board of Trustees. After the decision was announced, one of the long-time trustees gave the university several million dollars to set up a reward

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See *Rochester* on page 5

## Demise of UME Trends Leads to Expansion of Mathematics Education Articles in MAA Periodicals

*Jim Daniel and Alan Tucker*

The leadership in the MAA publication and education areas are working jointly to expand the Association's dissemination of material on collegiate mathematics teaching and learning. The Association is responding to the decision of the Joint Policy Board for Mathematics (JPBM) to discontinue publication of *UME Trends*, by soliciting and encouraging the submission of such material to all MAA publications: the six book series, the three journals, the FOCUS newsletter, the student magazine *Math Horizons*, and the electronic publication *MAA Online*.

*UME Trends* was started in 1989 with funding from the NSF Calculus Initiative to stimulate interest in calculus reform and collegiate mathematics education generally. The MAA has supported *UME Trends* in a variety of ways including putting a *UME Trends* subscription check-off option on the MAA dues bill and having MAA journal editors direct educational submissions to *UME Trends*. However, with the recent loss of NSF subsidies, subscription income for *UME Trends* was falling far short

of publication costs. Neither JPBM collectively nor the MAA individually was willing to subsidize this shortfall. The last issue of *UME Trends* appeared in January 1996.

The Association, however, has a major interest in seeing the work of *UME Trends* continue and grow. Many features of *UME Trends*, such as the Education Council column, seemed naturally suited to publication in the MAA newsletter FOCUS where they would be accessible to all MAA members. Other *UME Trends* features such as the summaries of research in mathematics education would have seemed of questionable merit for an MAA periodical in 1989, but today seem appropriate, just as a plenary talk at a national meeting on research in mathematics education was unthinkable in 1989 and is now a regular, well attended component of national meetings.

With the demise of *UME Trends* becoming a likely reality, an ad hoc committee chaired by past MAA president Lida Barrett was convened

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See *Mathematics Education* on page 9

# FOCUS

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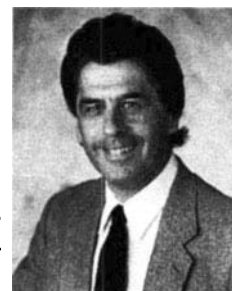
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# Editorial

## Farewell, UME Trends

Last month the mathematics education newsletter *UME Trends* ceased publication. (See the article by Jim Daniel and Alan Tucker on page 1.) Born seven years ago with the calculus reform movement, and devoted to the coverage of collegiate mathematics education, its editor for its entire life was Ed Dubinsky.



The MAA has committed itself to ensuring that the disappearance of *UME Trends* will not result in a vacuum in terms of dissemination of information concerning developments in collegiate mathematics education. One result is that, in the future, you can expect to see more articles in FOCUS that would previously have appeared in *Trends*. (Corollary: send in those articles.)

This is more a quantitative than a qualitative change. After all, almost everything that appears in FOCUS concerns mathematics education in one way or another. However, as editor of FOCUS, I have in the past avoided publishing articles that were particularly suited to *UME Trends*. The reason was simple. FOCUS and *Trends* were not in competition and it was in no one's interest to enter an AT&T versus MCI type of battle. *UME Trends* was set up to cover a particular beat. FOCUS let it do so.

Of course whereas each issue of *Trends* was devoted entirely to articles of a particular kind, FOCUS serves a far larger audience, with a wide span of interests. So there is no doubt that the disappearance of *Trends* will leave a hole—I would say "a part of a hole" if there could be such a thing. To some extent that hole will be made up by the recent arrival of the new MAA Online electronic information service. There is also the excellent quarterly journal *Primus*, published by the United States Military Academy at West Point, which regularly carries a fascinating array of articles on mathematics education. Still, there will be a hole. But that should not be a cause of mourning. In saying a fond farewell to *UME Trends*, let me end not with my own words, but those of the editor of *Trends*, Ed Dubinsky, taken from his final editorial.

"The people of the Mohawk Nation do not make a big fuss about saying goodbye. In fact, the Mohawk language has only one word, *oneh*, which means both hello and goodbye. It is perhaps a linguistic expression of the Indian notion that endings are a necessary part of beginnings. The winter that follows autumn must see to the death of unused vegetation so that it can fertilize the next round of food. The aged Inuit in the end sits alone with honor in the frozen wastes as the community moves on with the vitality of a new generation. The Iroquois hunter stalks his prey for days and communicates with the animal who comes to understand the life-giving relation between hunter and hunted. These customs can be harsh, but they are a natural part of life, and death is always necessary in order that life may go on. There are eternal, but they are more subtle than specific individuals, or programs.

"[Editing *UME Trends*] has been fun. And I have learned a tremendous amount. I would not want to have lived my life without it including almost a decade of involvement with *UME Trends*. I hope that I and the other *UME Trends* people will find ways of contributing at the next level on which we are going to be developing and disseminating *UME Trends*-type material.

"So with that, it is only left for me to say...oneh."

—Keith Devlin

*The above opinions are those of the FOCUS editor and do not necessarily represent the official view of the MAA.*

# PRESIDENT'S COLUMN

## Professional Development for Everyone

I suspect that Benjamin F. Finkel, the original editor of the *Monthly*, and many of his successive editors of MAA journals, would be surprised to learn that they were doing professional development. They believed that they were providing quality expository articles about mathematics and mathematics education at the collegiate level. And so they were, but for what reason? The answer was clear to them: to allow collegiate mathematics faculty to stay abreast of developments and advances in mathematics and mathematics education. That is what professional development is all about. Learning never ends and it has always been the goal of the MAA to assist our members in keeping up-to-date. For most of the history of the MAA, this has been done through our journals, books, and meetings. In 1979, minicourses were introduced at our annual meetings and today minicourses are given at many section meetings as well.

Minicourses provide an excellent opportunity to sample a subject and get a feel for it; however, to learn on a deeper level, activities extending over longer periods of time are required. In response to this need, the Association has sponsored various projects that include summer workshops and other activities that may extend over several years. One of the most successful of these projects has been Project NExT, whose goal is to provide support for recent Ph.D.s who have just begun teaching. The Project NExT fellows meet at two summer and winter meetings, attend a workshop at each of the two summer meetings, and are in e-mail contact during the academic year.

The SUMMA project (Strengthening Underrepresented Minority Mathematics Achievement) is a professional development activity aimed at increasing minority presence in mathematics. The goals of some recent projects are: increasing knowledge about the use of calculators in instruction; teaching about statistics; authoring and using interactive texts; us-

ing cooperative learning; and incorporating history in instruction.

Recently the MAA has taken two major steps to organize and support our professional development activities. The first of these is part of the staff reorganization at our Washington office, namely the creation of a new position, Associate Executive Director, Director of Member Services and Programs. The AED for Member Services and Programs will have responsibility for support and oversight of the Association's professional development activities. The creation of this position is recognition that member services and programs are parallel to, and are as important as, our publishing activities.

The second step is a refocusing of the Committee on Faculty Development. This began with the change of the committee's name to the Committee on Professional Development. The committee has responsibility for soliciting and evaluating proposals for professional development activities and working with headquarters staff on the implementation of selected projects. As an initial activity, the committee is planning to introduce a series of courses that will be taught over the Internet using the World Wide Web. The advantages of this mode of delivery are (1) costs related to travel and subsistence can be substantially reduced; (2) individuals who are unable to leave home because of family or other responsibilities can now participate; and (3) learning and doing can be combined.

The Association may seek grants to support preparation of these courses and other start-up activities; however, it is our goal that this program eventually be financially self-sustaining and supported by course registration fees.

Planning is underway for four such courses: "Using Cooperative Learning;" "Learning about Learning and Teaching" (a course intended for graduate students); "Integrating Applications into Under-

graduate Instruction;" and "Teaching Developmental Mathematics."

The course "Using Cooperative Learning" will be run by Ed Dubinsky (Purdue University), David Mathews (Central Michigan University), and Sr. Barbara Reynolds (Cardinal Stritch College, now visiting Brown University), who have been instructors in the CLUME (Cooperative Learning in Undergraduate Mathematics Education) summer workshops on cooperative education. The initial course on cooperative learning is scheduled to be taught in the spring of 1997 and additional sessions will follow during the summer.

The task force planning the course "Learning about Learning and Teaching" is headed by Nancy Hagelgans (Ursinus College); the task force on "Integrating Applications into Undergraduate Instruction" by Martha Siegel (Towson State University); and "Teaching Developmental Mathematics" by Bonnie Gold (Wabash College). Jon Scott (Montgomery College) is spending this academic year as a visiting mathematician at the MAA headquarters in Washington, with the special responsibility of supporting these activities. If you have an idea for a course or would like to be involved in planning a course, please contact any of the people listed above or write to Jerry Porter (University of Pennsylvania), the chair of the Committee on Professional Development. His e-mail address is gjporter@math.upenn.edu. It's a pleasure to acknowledge, with sincere thanks, that Jerry wrote the first and nearly final draft of this column.

This is an exciting time to be president of the MAA. I discussed above the need for individuals to change during their professional careers and keep abreast of recent activities in their field. The same is true of professional organizations such as the MAA. As Will Rogers once said, "When you're through changing, you're through."

—Ken Ross



## People to People

Constance Reid

Some sixty representatives of the American mathematical community were among the more than five hundred women and a few men who flew to Beijing in August of last year for the U.S.–China Joint Conference on Women's Issues, sponsored by the Citizen Ambassador Program of People to People International in conjunction with the China Women's Association for Science and Technology (CWAST). This was the first of three conferences that would in the space of two weeks bring more than thirty thousand women to China.

Established originally as a government entity by President Eisenhower but now a private organization, the Citizen Ambassador Program remains dedicated to Eisenhower's belief that there will never be peace until the peoples of the world get to know one another.

Alice T. Schafer (Marymount University and Wellesley College), who had earlier led a similar group to China ("Women in Mathematical Research"), headed the Science and Mathematics Section, the largest of the eleven formal sections at the conference. Chinese participants in the section were led by Xiao Ling, a research fellow in the Institute of Mathematics of the Chinese Academy of Sciences and an associate professor at Beijing Normal University. A specialist in partial differential equations, she has been a visitor at Brown, Rutgers, Washington, Indiana, and the Courant Institute.

The dynamic Madame Wu Ganmei, secretary general of CWAST and executive director of the Nongovernmental Organizations (NGO) Forum on Women, which was to begin in only a few days, presided at the opening plenary session at Friendship House. Delegates were welcomed by the president of CWAST, Dr. Xie Xide, a physicist and a former president of Fudan University who took her doctorate at M.I.T.

Dr. Xie (Chinese surnames come first) was also in attendance at the first working session on Women in Science and Mathematics. Schafer, a founding member of the Association for Women in Mathematics, opened the session by describing successes of American women mathematicians in the last twenty-five years: "Some with the help

of men mathematicians who believe in fairness, and some with the help of the organizations which have been formed to aid in these endeavors." She was followed by Pao-sheng Hsu (University of Maine), the assistant chair, who addressed the diverse audience on "Building a Community of Mathematicians, Mathematics Educators, and K–12 Teachers."

Mathematics Empowers Women was the theme of the section. A banner bearing those words was displayed at the front of the meeting room. Another theme, pointed out by one of the speakers, might have been expressed by the Chinese character for "Crisis," which implies "Opportunity."

Presentations by Americans alternated with those by Chinese. Since the Americans included representatives from business and industry as well as from secondary school, community college, and college and university faculties, their subjects were varied. Their Chinese counterparts, who came largely from Beijing Normal University, tended to concentrate on pedagogical problems. Americans more frequently treated technological developments in mathematics and mathematical research in other sciences, but the Chinese treated each of these subjects at least once. Wong Zu We from the People's Bank of China spoke on the use of the computer for researching numerical methods, while Ye Shuhua, director of the Center for Astro-Geodynamic Research, presented recent results in seismic research and urged greater international cooperation.

Americans also took up such currently popular educational concerns as self-mentoring, cooperative learning, dealing with nontraditional students, and innovative programming at community colleges. The Chinese, however, were well aware of the problems of women trying to pursue a career in science. Liu Xiufang of Beijing Normal University ("Women Can Get Ahead by Their Own Efforts") described winning "a garment award"—working on one occasion for forty-three hours straight—while writing her book on the foundations of probability.

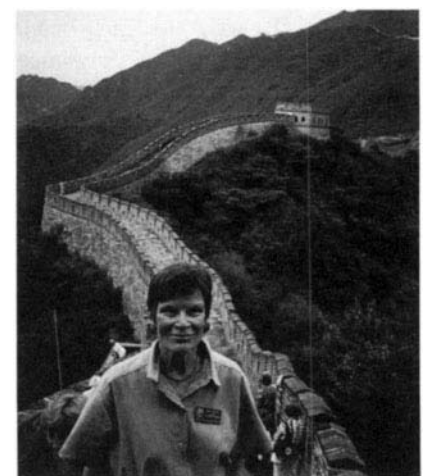
As with the Americans, success for the Chinese was often ambiguous. Pointing out that 30% of the students in graduate



Pao-sheng Hsu, assistant co-chair, and Alice T. Schafer, co-chair, with the mathematics banner at the NGO Forum on Women in Huairou

classes are now women, Hwang Hai Yang, also of the Normal University, had to add that as a result of "economic reform" men are leaving mathematics for better paying jobs. Other pedagogical concerns treated by the Chinese were "The Method to Guide School Girls to Master Mathematics," "Teachers' Influence on Learning Mathematics in Secondary Schools," "Superiority of Women Teachers," "Paving Stones on the Road to Science," and "Better Ways to Teach College Mathematics." What emerged most strongly from these talks was a rueful recognition by the Americans of the commonality of problems in bringing women successfully into mathematics.

The concluding Chinese speaker was Wang Chang Pei, dean of the Department of Mathematics at the Beijing Institute of Education. Crediting the reading of Freeman Dyson's *Disturbing the Universe* for some of his ideas, he proposed a "paradigm revolution" in mathematics education for the twenty-first century that would change the "color" of the subject from gray (military camp) to green (garden, "useful and enjoyable"), with increased concern



Constance Reid on the Great Wall of China





Alice T. Schafer, American co-chair of the Section on Science and Mathematics, with Diana Vincent (Medical University of South Carolina) and her poster presentation Math, Medicine, Mind and Motherhood

for the individual while maintaining a balance between the needs of the individual and of society.

Although the Americans had looked forward to roundtable discussions with their Chinese counterparts, the size of the section precluded these. Also disappointing was the fact that while four talks given in Chinese were translated, no Chinese translator was provided for talks in English, the size of the section being again responsible.

Because of People to People's long rapport with CWAIST, its delegates did not generally experience the frustrations and surveillance reported by other groups. An exception occurred in connection with their attendance at the opening ceremonies of the NGO Forum on Women, a spectacular and moving celebration for which the women's symphony and chorus and hundreds of Chinese young people had been preparing for two years. On that occasion some identification badges were arbitrarily held up or not issued; and those who did attend (sometimes simply borrowing the badges of others) were examined with metal detectors on entering the Olympic Stadium, their bags opened and—with the temperature in the 90s—their water bottles confiscated. Once inside, however, they found themselves seated on the fifty-yard line, in the shade, and in much more comfortable seats than those on the other side of the stadium.

A contingent from People to People went the following day by bus to participate in NGO sessions in Huairou, the smaller city

to which the Chinese government had consigned that less favored group. (First Lady Hillary Rodham Clinton also travelled to Huairou to speak there as well as in Beijing, where she addressed the United Nations Fourth World Conference on Women.)

Patricia Kenschaft (Montclair State University) and Frances Rosamond (National University) had campaigned to have the MAA send representatives to the NGO conference, but they were able to send to China two banners with the words "Mathematics Empowers Women." The second of these was taken by Schafer, Hsu, and Mary Steen to Huairou, where it was displayed in the Once and Future Pavilion as a reminder that women are empowered by mathematics.

People to People closed with an opportunity for delegates to visit their choice of such Chinese institutions as the Beijing Institute of Technology, the West District Residential Community, the Xiyuan Traditional Chinese Medicine Hospital, the Teaching Hospital of Beijing Medical University, the Beijing Arts and Crafts School, and Beijing University. The latter institution, founded in 1898 as the Imperial University, now has twenty-eight departments offering undergraduate and graduate programs, twenty-seven research

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system for good undergraduate teaching at the university.

The university will also cut undergraduate enrollment by several hundred students starting in fall 1996. This will be done by raising the entrance requirements.

In a statement circulated on the Internet, Vice Provost and Dean of the College Richard N. Aslin stressed that "the overall context of the decision is a budget situation, common to many universities, that compelled us to act now rather than defer a decision into the future." Aslin continued, "We fully recognize that there are several world-class mathematicians in our department at Rochester. But, in our judgment, particularly given the recent NRC rankings that placed Rochester in the bottom of the second quartile, we would have to make a large investment to move our department into the top quartile. At a time when we must decrease our overall fac-

ulties, and twelve interdisciplinary research centers as well as a school for adult education.

In spite of the heavy schedule, the delegates still had time to visit the Great Wall and the most famous tourist sights of Beijing, as well as to shop in the Friendship Store and the Antique Lane, cope with Chinese taxis, attend Peking Opera, and enjoy a free evening on the town (which many of the younger delegates spent at the Hard Rock Cafe).

There had been excitement and delay at the beginning of the trip when Harry Wu was unexpectedly returned to the U.S. on the chartered plane on which most of the delegates were scheduled to leave, but the return flight of eleven hours and fifteen minutes brought them back to San Francisco on time on September 2—before, according to the calendar, they had left China.

*This article also appeared, in slightly different form, in the January 1996 issue of the Association for Women in Mathematics Newsletter.*

*Constance Reid is a well known mathematics writer. Her most recent book is The Search for E. T. Bell, published by the MAA in 1993.*

ulty size by 10%, this did not seem to us a wise investment.... In short, we did not view an investment in our math department at a time of retrenchment to be worth the risk."

Aslin emphasized that the University of Rochester has not abandoned the provision of quality mathematics instruction to our undergraduates. "However," he says, "a Ph.D. program is by no means a necessity for producing highly skilled undergraduate majors, as attested to by distinguished mathematics majors produced by prestigious liberal arts colleges. In our judgment, we can significantly decrease the faculty size in mathematics who are primarily devoted to delivering quality undergraduate instruction to math majors and other sophisticated science majors, while seeking other avenues (technology and non-research faculty) to deliver instruction in basic calculus (typically for non-majors)."

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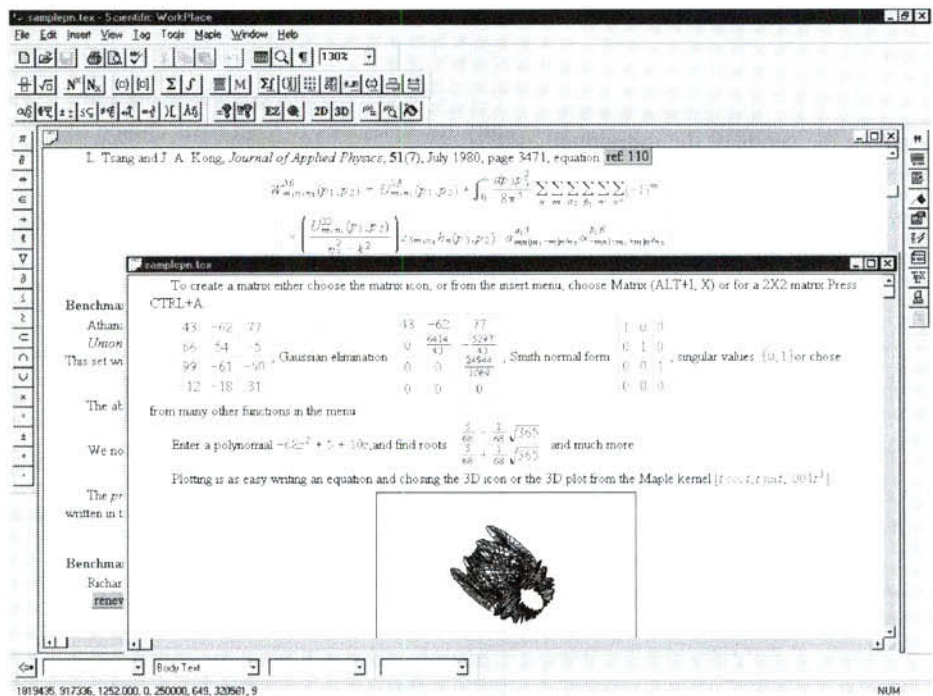
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# Math Ed Goes to Oberwolfach

Anita Solow

Long known as a center for major international conferences on mathematic research, the Mathematisches Forschungsinstitut at Oberwolfach in Germany opened its doors to the mathematics education community for the first time last November. The conference *New Trends in the Teaching and Learning of Mathematics* ran from November 27 through December 1, 1995. Twenty-five participants from the United States, Germany, Switzerland, Austria, England, France, and Australia met for a week of lectures and lively discussion on key issues in collegiate mathematics education. The conference organizers were Urs Kirchgraber, David Bressoud, and Ed Packel.

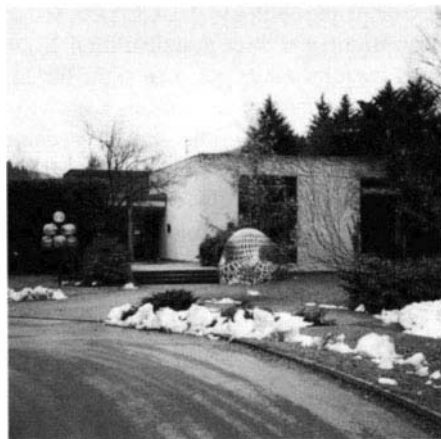
The Oberwolfach Institute began towards the end of World War II when the Germans removed some of their mathematicians from the front lines and put them at a site which was isolated and relatively safe from the bombings. It was officially established in 1944, with the first formal talk given on October 28, 1944. The Mathematics Institute, under the direction of Professor Dr. Matthias Kreck, hosts fifty conferences each year, and is supported by the state government.

The setting at Oberwolfach has been carefully designed to encourage the mixing of people and ideas. It is secluded in the Black Forest of Germany, surrounded by beautiful hills. The participants are treated royally. The meals are excellent, with seats assigned to encourage the participants to mix. This made each meal the occasion for stimulating conversation. The library at Oberwolfach is first class. There are many traditions at Oberwolfach. For example, the participants sign a guest book and hand write abstracts of their talks in another book. These records give a history of Oberwolfach and the important mathematics that has been done there.

Three talks were given during each session, with some time for questions and answers after each. The participants not only came from different countries, but also represented different specialities

within mathematics education. It was rather amazing how broadly and differently we interpreted the title of the conference when creating our talks. The main categories of talks were (1) research into how students learn mathematics; (2) curricular innovations designed to motivate students; (3) the use of technology in teaching mathematics; and (4) general issues, such as proof, assessment, and reform in American high schools. Some talks spanned several of these categories.

In the first category, we heard about predictive and functional modes of cognition from Inge Schwank, the APOS model and its use in using research on how students learn to design the curriculum from Ed Dubinsky, and the idea of procepts from David Tall. Bernd Wollring gave a fasci-



inating talk on the work he does to understand how children learn the ideas of probability. Lisa Hefendehl-Hebeker talked about aspects of explaining mathematics. Although the theories differed greatly, all shared a constructivist viewpoint of mathematics education.

Motivating students clearly became a theme of the conference. The approaches were varied—the use of history (Hans Niels Jahnke and Fred Rickey), using applications (Wolfgang Henn, Urs Kirchgraber, Werner Hartmann, Hans-Christian Reichel, and Werner Schmidt), exploring ties between the mathematics and the world of the student (Deborah Hughes Hallet, David Smith, and Bill Barker), and using mathematics itself (John Stillwell and Jurg Kramer)—but the goals were similar. Many of the differences of the approach were reflections of the major differences between the school sys-

tems of the United States and those in Europe. To help us understand the differences between the school systems, we had a “Swiss morning” where we learned more about the Swiss gymnasium. In addition, Dan Kennedy gave a beautifully written talk in which he analyzed the prospects for reform in American high schools by studying the similarities between mathematics reform and the unreasonable success of McDonald’s. The American idea of curricular development is different from the European one where curriculum is centralized. Bernd Wollring’s view of curriculum development was “Making curriculum proposals is putting your head below the guillotine and waiting.” At times the differences seemed to overshadow the concerns that we all shared on how to help our students learn.

The talks that focused on technology dealt with the use of *Mathematica* in mathematics courses at the level of calculus and above (Ed Packel) and the use of dynamic geometry software, in particular *Cabri*, in the teaching of geometry (Collete and Jean-Marie Laborde, Reinhard Hoelzl, and Heinz Klemenz). The conference began with David Bressoud talking about proof in mathematics and the connections between counting alternating sign matrices and descending plane partitions, and towards the end, I talked about issues of assessment and the impact that reform and technology has on them.

On Thursday evening, the participants gathered in a session to develop a list of questions that arose from our talks. Although not a research agenda, there is a hope that others will also find the questions important and interesting, and that the questions will stimulate workers in the field to obtain new results and to improve the learning of mathematics by students throughout the world. The questions from Oberwolfach can be found on the MAA Web site. The creation of the questions helped to bring a sense of closure to a stimulating week. It is hoped that this will be the first of many conferences on mathematics education to be held at Oberwolfach.

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## Meyer Jerison, Mathematics Maven (1922–1995)

*Leonard Gillman and Melvin Henriksen*

Meyer Jerison, our close friend for over forty years and our long-time collaborator, died on March 13, 1995, after battling cancer for several years.

“Jerry,” as he was known to almost everyone, was born in Bialystok, Poland on November 28, 1922, but came to the U.S. in 1929 and was naturalized in 1933. His early education was in Jewish parochial schools in New York City, where he mastered Hebrew and the Torah along with the standard academic subjects. He earned a bachelor’s degree and Phi Beta Kappa key at City College in 1943; a master’s in Applied Mathematics from Brown in 1947; and, in 1950, his Ph.D. in Mathematics at Michigan, under the direction of Sumner Myers. Along the way, he worked as a physicist at NACA (now NASA) in Cleveland (1944–46) and as a research engineer at Lockheed Aircraft (1952), and taught at Case Institute (1945–46) and later as a research associate at Illinois (1949–51). While in Cleveland he met Miriam Schwartz, whom he married in 1945. He died just before their fiftieth wedding anniversary. In 1951 he joined the faculty of Purdue University, where he remained until his retirement in 1991. He was chairman of the Division of Mathematical Sciences from 1969 to 1975. Over the years he was an active member of the AMS and MAA, notably as book reviews editor of *Bulletin of the AMS* (1980–85); governor of the Indiana Section of the MAA (1981–84); and more recently as a member of the MAA Committee on Publications. In addition he served the MAA as a member of CUPM and its panels, and as an MAA lecturer. At Purdue he coached the Putnam team both before and after his retirement. He was respected by every person he interacted with, and loved by many.

Jerry was an author or coauthor of more than twenty research papers, and at least four times as many reviews, but his memory will live on longest for his collaboration with Leonard Gillman on the book *Rings of Continuous Functions*. (I was initially a coauthor, but foolishly dropped out.—MH) Jerry had nine Ph.D. students. One of them, John Mack, now at Kentucky, singles out Jerry’s demands for excellence in exposition as initially frustrating, though later Mack came to appreciate Jerry’s concern that his students be properly trained in

writing mathematics. Mack also describes Jerry’s genuine interest in his doctoral students as people: “At mathematics meetings and conferences, he always took time to chat and to catch up on the personal details of my life, often over dinner.” Joe Kist, another of Jerry’s students, now at New Mexico State, expected to be handed a thesis problem and was taken aback when Jerry insisted he find his own. Later he realized that Jerry had introduced him to mathematical independence, for which he remained forever grateful.

Meyer Jerison is survived by his wife, two sons, Michael (professor of economics at SUNY Albany) and David (professor of mathematics at MIT), a brother, Harry (professor of psychology at UCLA), a sister, Jean Blum, and three grandchildren. Long well established in his own right for his work in functional analysis as well as in rings of continuous functions, he became even better known as David Jerison’s father. (John Mack recalls a conversation with a young colleague who told him that Jerison could not have been his advisor because Mack was too old. Mack recounted the exchange to Jerry who “fairly burst with pride.”)

The two of us joined the Purdue faculty in fall 1952, where we met Jerry as well as one another. During that academic year, our new trio participated in seminars together and embarked on joint research. Our different mathematical backgrounds meshed nicely and led during the next few years to several papers, including joint papers by each of the three pairs and one triple paper, as well as to the book. These collaborations laid the foundations for the rest of our careers and formed the basis for lifelong friendships.

Meyer Jerison was an exemplary citizen of the mathematical world—a superb lecturer and a dedicated and enthusiastic teacher, revered by his students. His commitment to excellence was inspiring. He was a calm, steady influence, and a bundle of good judgment. He stood up for important matters of principle without letting annoyances distract him. His passing leaves a void in the mathematical community and especially in the lives of the authors of this article.

There is no more appropriate way to close this account than with the following eloquent letter from David Jerison.



“My father loved mathematics; he was a mathematics maven. He liked a good math lecture the way one might enjoy a good concert or sports event. He took pleasure in those performances largely because he liked mathematical people, and he liked to watch them succeed. He also complimented mathematicians behind their backs, a welcome inversion of the usual gossip.

“Mathematical parents might be interested to know that I don’t remember him as ever intervening in my mathematical training. He did not encourage me to become a mathematician. In particular, I got the message that doing well in school, at least through college, gave no guarantee that one could be creative in mathematics. Nevertheless his enthusiasm for mathematics was hard to disguise. He reminded me much later that he did intervene once when he discovered that after one year of algebra in 8th grade, I only knew how to solve quadratic equations using the quadratic formula, rather than by factorization or completing the square. He gave me an old “college algebra” text that summer and I worked a few hundred problems. That summer I also found some MAA contest problem books on his bookshelf.

“My brother remarked at the funeral that my father taught us almost exclusively by example. His example was one of energetic devotion to work and professional service, and to our family. The command “Be careful” was banished by my father as redundant or absurd. In retrospect, as a parent, I am amazed at my parents’ forbearance concerning this and many other injunctions.”

*This memorial also appeared in the January 1996 issue of Notices of the AMS.*

*Leonard Gillman is professor emeritus at the University of Texas at Austin and is a former president of the MAA. Melvin Henriksen is a professor in the Department of Mathematics at Harvey Mudd College in Claremont, California.*



*Mathematics Education* from page 1

this past October to outline a strategy for incorporating more *UME Trends*-type materials in MAA periodicals. The committee included the chair Alan Tucker and another member, Tom Tucker, of the Education Council, and the chair Jim Daniel and another member, Carolyn Mahoney, of the Committee on Publications, along with *UMETrends* Editor Ed Dubinsky, the MAA Executive Director Marcia Sward, and MAA Director of Publications Don Albers.

The committee's strategy had two major components: (i) incorporating certain *UME Trends* regular features in FOCUS, some in condensed form; and (ii) developing a mechanism to actively solicit appropriate mathematical education articles for MAA journals. The Executive and Finance Committees encouraged the education and publication areas to continue working together to flesh out and implement the ad hoc committee's strategy. At the 1996 national meeting in Orlando, the Education Council endorsed the two components of this strategy and directed the council chair to work with the Committee on Publications chair to implement it.

At its Orlando meeting, the Committee on Publications established the policy that all MAA publications should be open to material on collegiate mathematics teaching and learning. Editor-elect Roger Horn of the *American Mathematical Monthly* announced that Alan Tucker and Guershon Harel agreed to appointments as associate editors. More than a year ago, editor Bart Braden of the *College Mathematics Journal* invited Annie and John Selden to join the editorial board of the CMJ, and Editor Paul Zorn of *Mathematics Magazine* indicated interest in a similar appointment. While the primary goal of MAA publications remain excellence in mathematical exposition, material on collegiate mathematics teaching and learning is intended to be a regular part of their mix of subject matter.

The chairs of the Committee on Publications and the Education Council have recommended the appointment of a joint committee to solicit and develop manuscripts appropriate for the various MAA periodicals until such time as these journals are seen widely enough as the natural homes for such articles as to attract high

quality manuscripts without assistance. This committee will be implementing the ad hoc committee's recommendation to continue the activist stance of the *UME Trends* editorial committee which aggressively solicited articles and opinion pieces for publication. The new committee will include an educationally oriented member from the editorial board of each of the three MAA journals and others. As always, final authority for editorial review and acceptance of manuscripts which the subcommittee solicits resides with the journal editors.

The first component of the ad hoc committee's strategy recommended that FOCUS be the outlet for the MAA Education Council column and the Minorities and Mathematics column, as well as many of the news and reports previously appearing in *UME Trends*, such as reports of meetings and conferences about collegiate mathematics education. In addition it recommended that *UMETrends* features NSF Beat, Research Sampler, and Innovative Teaching Exchange have condensed summaries in FOCUS, with pointers to fuller texts in *MAA Online*. To help facilitate the dissemination of collegiate mathematics education material in FOCUS, future FOCUS advisory committees will have liaison representatives from the MAA education area.

The FOCUS editor is already overwhelmed with more good material than FOCUS can publish. Thus, implementation of the ad hoc committee's recommendations affecting FOCUS will require extensive discussions and flexibility on the part of many parties. Interestingly, the FOCUS editor and his advisory board have

independently been discussing the possibility of having more material that consists of brief summaries in FOCUS with pointers to full articles in *MAA Online*.

Much remains to be done. Guidance must be developed for authors as to which publications are appropriate for educational materials of various types, levels, and orientations. Procedures are needed for coordinating condensed summaries in FOCUS with expanded versions in *MAA Online*.

In closing, it is essential to acknowledge the great debt of the collegiate mathematics community to *UMETrends*, its authors, its editorial board, and most of all to its editor Ed Dubinsky. Calculus reform and other efforts at rethinking collegiate mathematics instruction have earned the mathematics community accolades from many quarters, from the National Science Foundation leadership, and hundreds of campus deans. *UME Trends* was an effective disseminator and booster for these activities. The Association seeks to honor this debt by continuing much of what *UME Trends* did in its own periodicals.

In recognition of Ed Dubinsky's contribution, he was awarded a Certificate of Recognition by the Association at its Orlando business meeting.

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*Jim Daniel, of the University of Texas at Austin, is chair of the MAA Committee on Publications. His e-mail address is daniel@math.utexas.edu. Alan Tucker, of the State University of New York at Stony Brook, is chair of the MAA Education Council. His e-mail address is atucker@ccmail.sunysb.edu.*

## Martha Siegel Elected MAA Secretary

The Board of Governors has just elected Martha J. Siegel MAA Secretary, to succeed Gerald L. Alexanderson who became president-elect at the January meetings in Orlando. Professor Siegel is currently Professor of Mathematics at Towson State University in Maryland, and previously taught at Goucher College. She holds a Ph.D. from the University of Rochester and works in the fields of applied probability and modeling.

In the MAA she has served as a member of the Executive Committee and the

Board of Governors from 1991–1995. She was the Editor of *Mathematics Magazine* from 1991–1995, having served previously for five years as Associate Editor. She has served on a number of MAA committees, most recently chairing the AMS–MAA–SIAM Morgan Prize Committee. As a member of the Executive Committee she served on its Subcommittee on Strategic Initiatives.

Professor Siegel will serve as Secretary-Elect until July 1, 1996, and become Secretary at that time.

# 1996 JOINT MATHEMATICS MEETINGS

## ORLANDO, FLORIDA

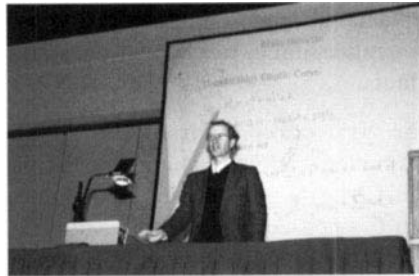
### Memories of Orlando

For many people who attended the Joint Mathematics Meetings in Orlando in January, the most significant event, and the one that will live longest in their memories, was simply getting there. When the Great Blizzard of '96 hit the Eastern Seaboard on the morning of Sunday, January 7, it left anyone living in the right hand quarter of the country either trapped in their homes, stranded en route to the airport, or stuck in the departure lounge, wondering if an airplane would ever take off from there that week.

With all three Washington, DC area airports closed, the MAA Board of Governors meeting on the Tuesday went ahead in the absence of the most of the headquarters staff, attended only by governors from the midwest, west, and southern states, and one or two people who, with a keen eye on the long range weather forecast, had left home on the previous Saturday.

It was Wednesday before attendants from any of the major east coast urban areas started to arrive, usually with travel horror stories to tell. Director of Publications Don Albers had already figured out the wording for signs he would erect apologizing for the absence of the planned, massive MAA book display that is always a feature of January meetings, only to be amazed when he arrived to find the entire display waiting for its first customers. Providing an excellent illustration of what makes the MAA a great organization to be part of, President-Elect Jerry Alexander (who hails from virtually snow-free California) had led a small team of dedicated volunteers in unpacking all 160 cartons of books and putting them out on the shelves, finishing the task just minutes before the exhibit was due to open.

By late Wednesday, most people had arrived, and the meeting began to seem more like normal, as attendants settled down to



*Andrew Wiles, Princeton University, gave a series of Colloquium Lectures on his recent proof of Fermat's Last Theorem*



*Above and below: The MAA Book Sale was a success, thanks to the help of many volunteers who set the booth up while the MAA staff was stranded by the blizzard*



*Donald Kreider, MAA Retiring President and Dartmouth University, gave his Retiring Address*

enjoy Andrew Wiles giving three excellent expository talks on his recent proof of Fermat's Last Theorem, see the three teaching award winners give dazzling displays of their teaching skills, listen to Past-President Don Kreider give his retiring address, visit the MAA book display (!), and engage in countless other activities that are part and parcel of today's joint meetings.

But then, by late Friday, with more snow



descending on the east and forecasts of still more to come, thoughts began to turn once again to questions of travel. Having finally managed to get to Orlando (where the temperature was a balmy 70° under a sunny sky), attendants from the eastern cities were faced with the problem of returning home in time to get to work the following Monday.

For many mathematicians, it was clearly a Joint Meetings to remember.

## The First Time Attendee's Social was Well Attended Despite the Weather



## Election Results

At its meeting in Orlando, the MAA Board of Governors made the following elections: For Governor-at-Large to represent High School Teachers, Katherine P. Layton of Beverly Hills High School. For Governor-at-Large to represent Minority Members, Manuel Berriozábal of the University of Texas at San Antonio. For Elected Member of the Finance Committee, David A. Sanchez of Texas A&M University.

## New Pólya Lecturer Chosen

Meeting in Orlando, the MAA Board of Governors elected László Babai to be the Association's next Pólya Lecturer. Professor Babai currently holds two positions, one at the University of Chicago, the other at Eötvös University in Budapest. His work spans combinatorics, group theory, and computation theory. He won the 1993 Gödel Prize of the European Association for Theoretical Computer Science. He is a member of the Hungarian Academy of Science and won their Erdős Prize in 1983.

## JPBM 1996 Communications Awardee

*New York Times* writer Gina Kolata is the recipient of the 1996 Communications Award of the Joint Policy Board for Mathematics. The award was made at a ceremony held on January 10 at the Joint Mathematics Meetings in Orlando.

Kolata has distinguished herself as an extraordinary communicator of mathematics, first as a senior writer for *Science* magazine, then since 1987 on the staff of the *New York Times*. AMS past president Ronald Graham said that Kolata "has a special gift for conveying the essence of a complicated concept in an engaging and understandable way, and for portraying the human side of mathematics as well."

In her eight years at the *Times*, Kolata has been nominated three times for a Pulitzer Prize. She has a master's degree in Mathematics from the University of Maryland.



Left to right: Ken Ross, MAA President, Gina Kolata, and Ron Graham, AMS ex-President

## Board of Governors Votes to Gather Information on Participation of Women and Minorities

After some discussion on the wording, the MAA Board of Governors passed the following motion at its meeting in Orlando on January 9:

"The MAA shall annually assemble and publish on a regular basis information on the relative numbers of women and minorities in at least the following categories: MAA membership, elected officials, committee members and chairs, members of editorial boards, invited hour speakers, speakers at special sessions and organizers of panels, and nominees and winners of awards/prizes."

## NCTM Request for Information

The National Council of Teachers of Mathematics (NCTM) has established a commission to provide direction for the future of the Standards. Just as the three volumes (*Curriculum and Evaluation Standards for School Mathematics*, *Professional Standards for Teaching Mathematics*, and *Assessment Standards for School Mathematics*) were strengthened by the reactions and comments of many people, the commission would benefit from your thinking on updating these documents. We are particularly interested in input from mathematicians.

While the impact of the Standards has exceeded our initial expectations in many ways, it is time to begin a serious conversation about next steps. The NCTM Board, through the commission, wants to hear from you before making decisions about updating the Standards. Our challenge now is to consider the ways in which our message will continue to be relevant and useful.

We request your thoughts, either as an individual or from group discussion, on the following questions:

1. Do you think the Standards might benefit from specific (a) clarifications, (b) expansions or additions, or (c) deletions? Please elaborate and be as specific as possible.
2. What strategies might you suggest for bringing about these changes in the Standards?
3. What steps should NCTM take to make the ideas in the Standards more widely discussed?

You may mail your responses to Futures, NCTM, 1906 Association Dr., Reston, VA 22091-1593; e-mail: [future@nctm.org](mailto:future@nctm.org). We will need to hear from you by March 15, 1996 at the latest.

Thank you for your help with this important task.

**Mary M. Lindquist**

Chair, Commission on the  
Future of the Standards

## Refunds for Orlando Meeting

Individuals who registered in advance for the January 1996 Joint Mathematics Meetings in Orlando, Florida, but who were prevented from attending the meetings because of severe weather along the eastern seaboard which closed airports over several days, may request a refund of fifty percent of the meeting advance registration fee by writing to the Mathematics Meetings Housing Bureau, P.O. Box 6887, Providence, RI 02940, or by sending e-mail to [pop@ams.org](mailto:pop@ams.org). The Joint Meetings Committee is granting this exception to the usual refund policy because of the unusual weather circumstances, but this will in no way prejudice the application of the usual policy for future meetings. (The usual policy is that a fifty percent refund can be made if notice of cancellation is received before the start of the meeting. After the start of the meeting, no refunds can be made.)

### MAA Minicourse Refunds

If you preregistered for an MAA minicourse at the Orlando meetings and were unable to attend due to the storm, you are eligible to receive a fifty percent refund. Please send a written request to: Minicourse Coordinator, 1529 18th Street, NW, Washington, DC 20036, or e-mail [jheckler@maa.org](mailto:jheckler@maa.org).



*Frank A. Morgan, Williams College, presented the Student Workshop on Soap Bubbles and Salt Crystals.*



## Undergraduate Research Prize Awarded

Kannan Soundararajan, a 1995 graduate of the University of Michigan, is the first recipient of the newly established AMS-MAA-SIAM Morgan Prize for undergraduate mathematics research. The award, made at the Joint Mathematics Meetings in Orlando, was in recognition of what was cited as "a body of truly exceptional research" in analytic number theory.

Kiran Kedlaya of Harvard University received Honorable Mention for the portfolio of four research papers which he submitted.

The Morgan Prize, an annual award of \$1000, was endowed by a gift from Mrs. Brennie Morgan of Allentown, Pennsylvania. To apply, students submit one or more published or unpublished papers that represent their work. Details are given on the SIAM Undergraduate Home Page (<http://www.siam.org>).



## Prizes Awarded in Orlando

As always, a large audience attended the MAA-AMS Joint Prize Session in Orlando. The prizes awarded by the MAA are listed below, with edited extracts from the accompanying citations.

### Deborah and Franklin Tepper Haimo Awards for Distinguished College or University Teaching of Mathematics

These awards are given to honor college or university teachers who have been widely recognized as extraordinarily successful and whose teaching effectiveness has been shown to have had influence beyond their own institutions. This year the awardees are Thomas F. Banchoff of Brown University, Edward M. Landesman of the University of California at Santa Cruz, and Herbert S. Wilf of the University of Pennsylvania.

Professor Banchoff is best known for his work in computer graphics, beginning with the award-winning film *The Hypercube: Projections and Slicing* and extending to his current projects in interactive computer laboratories for multi-variable calculus and differential geometry. He has been teaching at Brown since 1967, serving as chairman from 1981-85. His books include *Linear Algebra Through Geometry*, with John Wermer, and *Beyond the Third Dimension* in the Scientific American Library series. He received the Lester R. Ford Award in 1978.

Professor Landesman has been co-director of the Monterey bay Area Mathematics Project since its inception. Through this project he has helped over two hundred pre-college teachers upgrade their mathematics and instructional skills. He has written a linear algebra textbook and is a pioneer in the use of media in technology for teaching mathematics. He has produced many high quality videotapes for precalculus and interactive videodisk modules for learning mathematics. He has won numerous awards, including the 1984 UCSC Alumni Association's Distinguished Teacher of the Year Award, and was one of three awardees of a 1987 Ex-



Thomas F. Banchoff, Brown University



Edward M. Landesman, University of California at Santa Cruz, giving his presentation "Days of Yore"



Herbert S. Wilf, University of Pennsylvania

cellence in Teaching Award from the Northern California Phi Beta Kappa honor society. Professor Landesman joined the faculty of the University of California, Santa Cruz in 1966 and became professor of Mathematics in 1977. He has served as provost of Crown College and as associate academic vice-chancellor for undergraduate education.

Professor Wilf has written extensively for students of mathematics and for teachers of mathematics. As one of his former graduate students put it, "Professor Wilf writes as well as he speaks." In over 120 publications ranging from books to essays to research articles, he has inspired several generations of mathematical scholars and students in other disciplines as well. He has been a Guggenheim fellow and is a fellow of the Institute of Combinatorics and Its Applications. For the MAA, he has served on the Board of Governors from 1981-84 and again from 1987-91, and was a member of the Editorial Board of the *American Mathematical Monthly* from 1981-86 before becoming editor, 1987-91. He was co-founder and later co-editor-in-chief of the *Journal of Algorithms*,

and is currently editor-in-chief of the *Electronic Journal of Combinatorics*, of which he was also a co-founder.

### Educom Medal

The Educom Medal was established in 1994 to assist in improving "the quality of the undergraduate learning experience and to promote the effective use of information technology in higher education." Educom works with professional societies, this year with the MAA, in identifying people who have "addressed a significant pedagogical problem fundamental to the discipline; provided an innovative solution offering clear advantages over other techniques; and demonstrated substantial impact on improved student learning." The recipient this year is David A. Smith of Duke University.

Professor Smith was an early pioneer in the field of academic computing. He was mathematics editor for CONDUIT during the 1980s. He has served as associate editor for *Mathematics Magazine* and *The College Mathematics Journal*, and as software reviews editor for *UME Trends*. He provided strong leadership as chair of the

MAA's Committee on Computers in Mathematics Education and has served on the advisory committee of the Interactive Mathematics Text Project, which was strongly influenced by his work. He is perhaps best known for Project CALC, a program which he developed with L. C. Moore at Duke University.

### Beckenbach Book Prize

The Beckenbach Book Prize, established in 1986, is the successor to the MAA Book Prize. It is named for the late Edwin Beckenbach, a long-time leader in the publications program of the Association. The prize is awarded for distinguished, innovative books published by the Association. The prize this year goes to Constance Reid for her book *The Search for E. T. Bell, Also Known as John Taine*.

Eric Temple Bell was a number theorist and president of the MAA, as well as the author of a number of popular expositions of mathematics and its history. In her book, Reid describes the man behind these accomplishments.

After a career as a teacher of English and Journalism in the San Diego City Schools, Reid wrote a bestselling book about a summer vacation spent working on the B-24 production line during World War II. With the success of that first book, she was encouraged by her husband to devote herself to writing. She became a mathematical writer when an article on the first computer testing of Mersenne numbers was accepted by *Scientific American* and she was subsequently asked by a publisher to write "a little book on numbers." The result was *From Zero to Infinity*, recently republished by the MAA. She went on to write numerous books and articles on mathematics and mathematicians, including biographies of David Hilbert, Richard Courant, Jerzy Neyman, and Eric Temple Bell. With D. J. Albers and G. L. Alexanderson, she edited *More Mathematical People* and *An Illustrated History of International Mathematical Congresses*. She is the recipient of the MAA's Pólya Prize for her article about her sister, *The Autobiography of Julia Robinson*.

### Chauvenet Prize

The Chauvenet Prize for expository writing is given for an outstanding expository



Robert Bumcrot, Certificate of Meritorious Service awardee for the Metropolitan New York Section



Sylvan Burgstahler, Certificate of Meritorious Service awardee for the North Central Section

article on a mathematical topic by a member of the Association. The prize is named for William Chauvenet, a professor of mathematics at the United States Naval Academy.

The prize for 1996 goes to Joan S. Birman of Barnard College, Columbia University for her article *New Points of View in Knot Theory*, which appeared in the *Bulletin of the American Mathematical Society* 28 (1993), p. 253-287.

Professor Birman is well known for her work in knot theory. She obtained her Ph.D. at the Courant Institute, New York University, twenty years after receiving her B.A. at Barnard and after raising three children. She chaired the department at Barnard from 1973-87 and again from 1989-91. She has been a Sloan Foundation fellow and a Guggenheim fellow.



Constance Reid, recipient of the Beckenbach Book Prize for *The Search for E.T. Bell*

### Yueh-Gin Gung and Dr. Charles Y. Hu Award for Distinguished Service to Mathematics

This is the most prestigious award made by the Association. First given in 1990, it is the successor to the Award for Distinguished Service to Mathematics and is made possible by the late Dr. Hu and his wife, Yueh-Gin Gung. The awardee for 1996 is Andrew M. Gleason, who, before his 1992 retirement, was the Hollis Professor of Mathematics and Natural Philosophy at Harvard University.

Professor Gleason was an undergraduate at Yale, where he was in the top five in the Putnam Competition for three years in a row. After four years in the navy, he became a junior fellow at Harvard in 1946. His influence on mathematics education



Donald W. Bushaw, Certificate of Meritorious Service awardee for the Pacific Northwest Section



Marvin L. Brubaker, Certificate of Meritorious Service awardee for the Eastern Pennsylvania and Delaware Section



Andrew M. Gleason, Yueh-Gin Gung and Dr. Charles Y. Hu Distinguished Service award recipient



David A. Smith, Duke University, Educom Medal recipient

has covered over forty years. He was chairman of the Advisory Board to the School Mathematics Study Group, he organized the Cambridge Conference on School Mathematics, and he was on the advisory board to USMES, the Unified Science and Mathematics program in the Elementary Schools. He was the chief mathematical advisor to Houghton Mifflin and the Dolciani Series for many years. In recent years, his guiding hand can be seen throughout the Harvard Project Calculus.

In 1962 Gleason was the MAA's Earle Raymond Hedrick Lecturer at the summer meetings in Vancouver, British Columbia. In addition, he has served the Association as a member of a number of committees, including the Committee on the Putnam Prize Competition, the Committee on the Hedrick Lectures, the Science Policy Committee, and the

Development Committee.

### Certificates of Meritorious Service

The Certificates of Meritorious Service are presented for service to the MAA at the national level or for service to a section of the Association. This year's awardees are:

Marvin L. Brubaker, Eastern Pennsylvania and Delaware Section

Robert Bumcrot, Metropolitan New York Section

Sylvan Burgstahler, North Central Section

Donald W. Bushaw, Pacific Northwest Section

Donald V. Meyer, Iowa Section

Marvin Brubaker received his Ph.D. in

mathematics from Lehigh University. He joined the faculty of Moravian College, where he served as chair, and since 1983 has been professor of Mathematics at Messiah College. He has served the Eastern Pennsylvania and Delaware Section as vice president and president, and has just completed a term as section governor.

Robert Bumcrot served as chair of the Metropolitan New York Section from 1977-79 and was on the Board of Governors from 1987-90. He has served on many national committees, was a member of the editorial board for *The College Mathematics Journal* from 1987-90, and was on the editorial board for *The Two-Year College Mathematics Reader*, published in 1984.

Sylvan Burgstahler has served on the North Central Section as president and as governor, as well as member-at-large. At the national level, he has also served as chairperson of the Committee to Review MAA Periodicals, as a member of the MAA Committee on Sections, and as MAA representative on the Mathematical Sciences Education Board.

Professor Bushaw joined the faculty at Washington State University in 1952, becoming full professor in 1962. From 1986 until his retirement in 1993, he served as vice provost for instruction at Washington State. From 1970 to 1973, he was a member of the MAA's Board of Governors. He has served on the Board of Editors for *The College Mathematics Journal*.

Professor Meyer joined the faculty at Central College in 1963 and has served as department chair there for eighteen years. He was section chair from 1978-79, governor from 1983-86, and section newsletter editor from 1984-86 and again from 1991-95.

At the same awards ceremony, the Association for Women in Mathematics presented its Louise Hay Awards for contributions to Mathematics Education to Glenda T. Chappan of Michigan State University and Judith Roitman of the University of Kansas.

The American Mathematical Society awarded the Oswald Veblen Prize in Geometry to Richard Hamilton of the University of California, San Diego, and Gang Tian of the Massachusetts Institute of Technology.

## Public Lecture Attracts Large Audience

An estimated 500 people filled a large lecture hall at the University of California at Berkeley last December to hear three public lectures on mathematics. Sponsored by the Mary P. Dolciani Halloran Foundation and the MAA, the event, titled *Numbers in Action*, was organized by the Mathematical Sciences Research Institute (MSRI), which is located on the Berkeley campus. The target audience was local high school students and their teachers.

A show of hands at the start of the event indicated that among those present were

high school students and their teachers, university undergraduates and graduate students, university faculty, and a substantial number who declared themselves to be 'others.'

UC Berkeley professor Hendrik Lenstra spoke first, on *Fermat's Little Theorem: Counting, Coding, and Computing*.

Next came Ellen Gethner, a postdoctoral fellow at MSRI, whose talk *Prime Time* was about the distribution of the Gaussian primes among Gaussian integers.

Finally, Princeton's John Conway took to the stage with a presentation—some would call it a performance, complete with audience participation—on *Numbers and Knots*.

MAA Associate Executive Director Don Albers, who introduced the event, said afterwards that the intention was to organize similar evenings of public lectures at venues around the country, possibly in conjunction with the national joint MAA-AMS meetings.

## Preliminary Call for Papers

MAA Undergraduate Student Paper Sessions

at

Seattle MathFest

August 10–12, 1996

The ninth annual MAA Undergraduate Student Paper Sessions will take place at the joint MAA/AMS summer meetings in Seattle, Washington, August 10–12, 1996.

For further information and/or to submit nominations for fifteen minute papers along with brief abstracts, contact Ron Barnes, Computer/Math Sciences, University of Houston-Downtown, 1 Main St., Houston, TX 77002; e-mail: [barnes@dt.uh.edu](mailto:barnes@dt.uh.edu). Partial travel support for student speakers at Seattle is available through a grant from Exxon Education Foundation.

**Deadline for submission of abstracts is July 5th.**

## NEW BOOKS FROM THE MAA

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### Five Hundred Mathematical Challenges

*Edward J. Barbeau, William O. Moser, and Murray S. Klamkin*

This book contains 500 problems that range over a wide spectrum of areas of high school mathematics and levels of difficulty. Some are simple mathematical puzzles while others are serious problems at the Olympiad level. Students of all levels of interest and ability will be entertained and learn from the book. For many problems, more than one solution is supplied so that students can see how different approaches can be taken to a problem and compare the elegance and efficiency of different tools that might be applied.

Teachers at both the college and secondary levels will find the book useful, both for encouraging their students and for their own pleasure. Some of the problems can be used to provide a little spice in the regular curriculum by demonstrating the power of very basic techniques.

300 pp., Paperbound, 1995; ISBN-0-88385-519-4

List: \$29.50 MAA Member: \$23.50

**Catalog Code: CHMP/FOC**

### Learn from the Masters

*Frank Swetz, John Fauvel, Otto Bekken, Bengt Johansson, Victor Katz, Editors*

This book is for high school and college teachers who want to know how they can use the history of mathematics as a pedagogical tool to help their students construct their own knowledge of mathematics. Often, a historical development of a particular topic is the best way to present a mathematical topic, but teachers may not have the time to do the research needed to present the material.

The book is divided into two sections: the first on the use of history in high school mathematics; and the second on its use in university mathematics.

The articles are diverse, covering fields such as trigonometry, mathematical modeling, calculus, linear algebra, vector analysis, and celestial mechanics.

312 pp., Paperbound, 1995; ISBN-0-88385-703-0

List: \$23.00 MAA Member: \$18.00

**Catalog Code: LRM/FOC**



# Announcing Mathematics Awareness Week 1996

## April 21–27, “Mathematics and Decision Making”

The MAA and the Joint Policy Board for Mathematics invite you to join in the celebration of the breadth and depth of mathematics during Mathematics Awareness Week, April 21–27, 1996. The theme for Mathematics Awareness Week 1996 is Mathematics and Decision Making, a wide-ranging topic to use as a focus for communicating to a wider audience the power and diversity of mathematics.

We all make many decisions daily, from the clothes we put on according to weather predictions to the routes we take to run errands. Many more are made for us by the suppliers of goods and services we use and by the makers of public policies, for instance. Mathematics plays an important part in making many decisions. Better understanding of the mathematics involved will help us make better decisions and further understand those that affect us.

Mathematics and decision making includes such ideas as probability, risk, uncertainty, and prediction. Financial decision making incorporates such techniques as portfolio optimization, option processing, and risk management. Operations research—the use of mathematical models to optimize some practical operation—is widely used in government and industry. Risk assessment and management have significant implications in public policy-making—particularly in health and the environment—and suggest a broader issue: how to extrapolate from valid studies to extreme situations that can't be easily studied.

Here is an opportunity to expose a wider audience to mathematics—from the creation and discovery of new mathematics to its myriad uses in decision making. We urge you to meet with your colleagues and begin planning for Mathematics Awareness Week 1996 immediately. You can observe Mathematics Awareness Week 1996 with a special program on your campus, in your company, or at a local school. For ideas, look at the accompanying selected summaries of activities held in 1995 to celebrate Mathematics Awareness Week.

The following items are among those that will be available under the Mathematics Awareness Week heading at <http://forum.swarthmore.edu/maw/>:

- A sample proclamation to use in working with local officials in preparing a proclamation for your state or locality
- A list of available information on careers in the mathematical sciences
- A summary of mathematical resources, including reports on the improvement of mathematics education and other policy issues and items on mathematics and decision making
- Information about videos in mathematics to use during your MAW event
- More examples of 1995 MAW activities.

Early this year we will mail an MAW 1996 poster and postcard depicting Mathematics and Decision Making to a list of individuals in the mathematics community. We will also enclose and electronically post

the following:

- A sample news release which you can adapt and mail to local media outlets
- Articles on the theme Mathematics and Decision Making.

Last year, based on calls received, there were hundreds of radio and television spots, and articles and editorials in local and institutional newspapers covering MAW activities. We encourage you to use this opportunity to write an editorial on mathematics or to generate a news release about your special MAW event. Be sure to talk with your institution's public information office about your ideas and activities. The staff there might offer additional suggestions for using Mathematics Awareness Week to increase public understanding about mathematics.

Once again there will be an electronic mailing list to discuss items related to MAW. To subscribe, send a message to [majordomo@maa.org](mailto:majordomo@maa.org) with the following command in the body of your e-mail message:

subscribe maw-list <your e-mail address>

To send a message to this list, address it by e-mail to [maw-list@maa.org](mailto:maw-list@maa.org) and the majordomo software will then send it to everyone on the list.

Any ideas you have for spreading the word about mathematics are viable for MAW. Look over the descriptions of last year's activities on page 16, and start making your plans now.

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## Geometry of Multivariable Calculus

### Workshops on Computational Geometry

June 17–21, 1996, Spokane, WA

August 26–30, 1996, Seattle, WA

The NSF is funding two identical week-long workshops to strengthen the multidimensional geometric intuition that students need, but usually lack, to understand multivariable calculus, and hence to succeed in subsequent abstract or applied mathematics courses. These workshops will focus on the computation of intersec-

tions of curves and surfaces and applications to the design of autos and aircraft and to special effects for movies. Main activities include guest lecturers, demonstrations by industrial mathematicians, and designing related instructional material that fits in participants' existing courses.

The NSF will pay room (double occupancy) and board for up to twenty partici-

pants in each of the two identical workshops, as well as some summer stipends for participants who would like to submit their material for publication. All successful participants may earn three graduate credits—two for either workshop, one for one follow-up day. No travel expenses paid.

For registration materials, contact Yves Nievergelt, Dept. of Math, MS-32, Eastern Washington University, 526 5th St, Cheney, WA 99004-2415; fax: (509) 359-4700; e-mail: [ynievergelt@ewu.edu](mailto:ynievergelt@ewu.edu).

# Mathematics Awareness Week

## What They Did Last Year

*Need some ideas for activities for MAW 1996? Consider these, just a small sample of what was done in 1995.*

**The American University** (Washington, DC) celebrated MAW with its seventh annual problem solving contest. John Montroll, master designer of origami, gave a talk on that art form, and Professor Danny Gulick gave a lecture geared toward a general audience on his research in chaotic dynamical systems and fractal geometry.

**Boston University** (Boston, MA) held a poster exhibit on symmetry using M.C. Escher's designs and *Mathematica* computer graphics to explain tessellations. Professor Persi Diaconis was interviewed for the MAA's *Student Chapter Newsletter*, in which symmetry was a topic discussed.

**Central College** (Houston, TX) sponsored a week of colloquia on the mathematical sciences. Each lecture was followed by a reception at which students and faculty participated in informal discussions. A portfolio of students' projects, a videotape library, and articles about MAW were on display in the mathematics department. The forums, displays, and colloquia were promoted in local newspapers and on radio stations.

**Eastern Kentucky University** (Richmond, KY) sponsored the talk given by award-winning educator Dr. Helen Reed, titled "Balance in a Negative World." A contest to solve two mathematical problems was advertised in local newspapers. Prizes included a TI-85 calculator and a copy of *Derive*. The governor issued a proclamation designating May 26, 1995 as Mathematics Awareness Day in Kentucky.

**Indiana University of Pennsylvania** (Indiana, PA) held its third annual poster contest in which four mathematics classes participated. The faculty judged the posters, which were displayed along the halls of the mathematics classroom area.

**Lake Forest College** (Lake Forest, IL) sponsored a week of activities in April.

Events included a lecture by Dr. Kenneth Ross, titled "Random Walks and Shuffling," and an informal presentation and workshop by Dr. Ronald Graham on "The Mathematics of Juggling." Dr. Graham also gave the eleventh Annual Distinguished Volwiler Science lecture on "Searching for the Shortest Network." The college also held activities involving high school students—a mathematics and computer science career night and a quiz show highlighting some of the clever ideas, famous flaws, and fun of mathematics.

**Lycoming College** (Williamsport, PA) cosponsored a Mathematics Awareness Activity Day with the Pennsylvania College of Technology. Over one hundred students from area middle schools participated in several activities including hands-on sessions exploring polyhedra, probability, graphing calculators, mathematics games, and fractal geometry in nature. A planetarium show was also held.

**Metro State College of Denver** and the **University of Colorado at Denver** (Denver, CO) cosponsored several events including a puzzle contest and scavenger hunt. Students constructed a tetrahedral Sierpinski sponge out of 1024 one-inch tetrahedrons, which was displayed in the campus bookstore. Several members of faculty gave talks throughout the week. External speakers gave a number of presentations on mathematics and the real world.

**The New Jersey Mathematics Coalition** sponsored Math, Science, and Technology month during April. Some two hun-

dred events were held throughout the month, engaging parents and children in hands-on interactive activities for K–12 age groups. The governor issued a proclamation designating April as Mathematics, Science, and Technology month in New Jersey.

**Rochester Institute of Technology** (Rochester, NY) presented a lecture by Nobel Laureate Dr. Herbert Hauptman, president of the Hauptman–Woodward Medical Research Institute, titled "A Minimal Principle in the Phase Problem of X-Ray Crystallography." A mathematics challenge competition was held for local high school students.

**The University of Vermont** (Burlington, VT) sponsored several events including a talk on calculus reform given by Professor Tim Pennings from Hope College in Michigan. A pizza hour and discussion followed the lecture. The Mathematics and Statistics Department held a poster contest on the theme of symmetry for K–8 students from area schools. UVM students did the judging. A \$50 savings bond was awarded to the winning poster in each of the nine grades. During MAW, mathematics questions were broadcast daily on WRUV, with a T-shirt awarded for each day's correct answer. Mathematics Awareness T-shirts were sold for \$10.

**WGBH Radio** (Boston, MA) dedicated a program to mathematics in music in celebration of Mathematics Awareness Week. Robert J. Lurtsema, who hosts a five-hour classical music show on weekend mornings, discussed music and symmetry with his guest Professor David Epstein.

## Research in Collegiate Mathematics Education Call for Proposals

Research papers solicited for Conference in Collegiate Mathematics Education at Central Michigan University September 5-8, 1996. E-mail David Mathews at [David.M.Mathews@cmich.edu](mailto:David.M.Mathews@cmich.edu) or call (517) 774-4469.

## Calculus Reform Workshop Program

Eight five-day workshops will be offered in the summer of 1996 at sites geographically distributed throughout the country. Each workshop will have twenty-four participants. All expenses, except for participant travel, will be paid by an NSF grant. For more information, contact Don Small, USMA, West point, NY 10996; (914) 938-2227; e-mail: small@euler.math.usma.edu. For information on a specific workshop, contact the local coordinator.

**June 2–7** *Calculus Reform: Activities & Projects* Instructor: Don Small (USMA). Local Coordinator: Lawrence Woodward, Grambling University, Grambling LA 71245; (318) 274-2402

**June 9–14** *Integrated/Core Approach to Calculus* Instructors: Chris Arney, Don Small (USMA). Local Coordinator: John Wolfe, Oklahoma State University, Stillwater, OK 74078; (405) 744-5781

**June 16–21** *Project Calc* Instructors: David Smith, Lang Moore (Duke University). Local Coordinator: Clayton Dodge, University of Maine, Orono, ME 04469; (207) 581-3908

**June 21–26** *Calculus Using Mathematica* Instructor: Keith Stroyan (University of Iowa). Local Coordinator: G. S. Gill, Brigham Young University, Provo, UT 84602; (801) 378-2115

**June 23–28** *An Active Approach with Projects* Instructors: Eric Robinson, Diane Schwartz, Stan Seltzer. Local Coordinator: Mary Scherer, University of Redlands, Redlands, CA 92373; (909) 793-2121

**July 21–26** *Teaching Calculus for the Engineering, Physical, and Mathematical Sciences* Instructors: Elgin Johnston, Jerry Mathews, Brian Keller (Iowa State University). Local Coordinators: Brian Keller, Jerry Mathews, Iowa State University, Ames, IA 50011; (515) 294-7294.

**July 21–26** *St. Olaf Project* Instructors: Arnie Osteebee, Paul Zorn (St. Olaf College). Local Coordinator: K. Gunawardena, University of Wisconsin, Oshkosh, WI 54901; (414) 424-1056

**July 28–August 2** *Calculus in a Real and Complex World* Instructors: Frank Wattenberg, Margo Mankus (Weber State University), Larry Peterson (Bonnevillie High School). Local Coordinator: Gene Wayne, Pennsylvania State University, University Park, PA 16803; (814) 865-3661

## NSF Science & Technology Center for Discrete Mathematics & Theoretical Computer Science

1996–97 DIMACS REU Program, Rutgers University

Eight weeks during May and August (arranged individually), hosting five to seven students, pending funding availability from the NSF. Possible project areas: computational biology or chemistry, combinatorics, computational group theory, algorithm complexity. Stipend: \$3000 (includes room/board expense) plus travel. (U.S. citizens and permanent residents only.) Electronic information/application: reuappl@dimacs.rutgers.edu; WWW URL: <http://dimacs.rutgers.edu>. Contact: Deborah Franzblau (REU coordinator), DIMACS, Core Bldg., Busch Campus, Rutgers University, Piscataway, NJ 08855-1179; (908) 445-4573 or (908) 445-5928; e-mail [franzbla@dimacs.rutgers.edu](mailto:franzbla@dimacs.rutgers.edu); application deadline: March 1, 1996.

## DIMACS Workshops, Rutgers University

### March 1996

**4–6:** Second Sandia National Laboratories Workshop on Computational Molecular Biology, organized in collaboration with DIMACS (to be held in Albuquerque, NM)

**11–13:** DIMACS Special Year in Logic and Algorithms: Workshop on the Satisfiability Problem: Theory and Applications, Rutgers University, Piscataway, NJ. Contact the workshop coordinator at (908) 445-5939; e-mail: [toci@dimacs.rutgers.edu](mailto:toci@dimacs.rutgers.edu).

**25–29:** DIMACS Special Year in Logic and Algorithms: Workshop on Computational and Complexity Issues in Automated Verification, Rutgers University, Piscataway, NJ. Contact the workshop coordinator at (908) 445-5930; e-mail: [toci@dimacs.rutgers.edu](mailto:toci@dimacs.rutgers.edu).

### April 1996

**10–12:** DIMACS Special Year in Logic and Algorithms: Workshop on Logic and Optimization, Rutgers University, Piscataway, NJ. Contact the workshop coordinator at (908) 445-5930; e-mail: [toci@dimacs.rutgers.edu](mailto:toci@dimacs.rutgers.edu).

**21–24:** DIMACS Special Year on Logic and Algorithms: Workshop on Feasible Arithmetics and Length of Proofs, Rutgers University, Piscataway, NJ. Contact the workshop coordinator at (908) 445-5930; e-mail: [toci@dimacs.rutgers.edu](mailto:toci@dimacs.rutgers.edu).

### May 1996

**6–7:** DIMACS Special Year in Logic and Algorithms: Workshop on Controllers for Manufacturing and Automation: Specification, Synthesis, and Verification Issues, Rutgers University. Contact the workshop coordinator at (908) 445-5930; e-mail: [toci@dimacs.rutgers.edu](mailto:toci@dimacs.rutgers.edu).

The workshops will be held at DIMACS, Rutgers University. For more information, contact DIMACS Center, (908) 445-5928, e-mail: [center@dimacs.rutgers.edu](mailto:center@dimacs.rutgers.edu); WWW: <http://dimacs.rutgers.edu/>; telnet: [telnet info.rutgers.edu](telnet:info.rutgers.edu) 90.

## MAA Contributed Papers in Seattle

The Mathematical Association of America and the American Mathematical Society will hold their last joint MathFest this century from Saturday, August 10, 1996 through Monday, August 12, 1996 in Seattle, Washington. The complete meetings program will appear in the April 1996 issue of FOCUS and the May 1996 issue of the AMS *Notices*. This preliminary announcement is designed to alert participants about the MAA's contributed papers sessions and their deadlines.

Please note that the days scheduled for these sessions remain tentative. The organizers solicit contributed papers pertinent to their sessions; proposals should be directed to the organizer whose name is followed by an asterisk (\*).

Sessions generally limit presentations to ten minutes, but selected participants may extend their contributions up to twenty minutes. Each session room contains an overhead projector and screen; blackboards will not be available. Persons needing additional equipment should contact, as soon as possible, but prior to May 3, 1996: Donovan H. Van Osdol, Department of Mathematics, University of New Hampshire, Durham, NH 03824; e-mail: dvanosdo@maa.org.

Innovative Teaching in First-year College Mathematics Courses  
*Saturday and Sunday afternoons*

Howard L. Penn\*, Department of Mathematics 572 Holloway Rd, U.S. Naval Academy, Annapolis, MD 21402-5002; (410) 293-6768; fax: (410) 293-4883; e-mail: hlp@usna.navy.mil

Aaron I. Stucker Washburn University

This session will present talks describing innovative techniques in the teaching of mathematics courses typically taught in the first year of college. Innovative techniques include (but are not limited to) the use of technology, writing projects, and cooperative learning. Submission of proposals via electronic mail is preferred by the organizers.

Reformed Calculus in Performance: What Works, What to Fix  
*Saturday and Sunday afternoons*

Walter Kelley\*, Department of Mathematics, University of Oklahoma, Norman, OK 73019; (405) 325-3782; fax: (405) 325-7484; email: wkelley@uoknor.edu

Curtis McKnight, University of Oklahoma

The continuing efforts at calculus reform have by now provided considerable information on what has worked well in reform efforts, what has not, and in what directions reform of various reform efforts should go. This session invites papers on the investigation of calculus reform projects, especially formal assessment studies, and on possible directions of future innovation.

Mathematicians in the K-8 Classroom  
*Saturday and Monday afternoons*

Una Bray\*, Department of Mathematics and Computer Science, Skidmore College, Saratoga Springs, NY 12866-1632; (518) 584-5000 ext. 2246; e-mail: ubray@skidmore.edu

R. Daniel Hurwitz, Skidmore College

The elementary and middle school classrooms may be the most difficult and yet the most important arenas for mathematicians to make contributions to educational reform. But members of college and university faculties can make a difference in how young students (and teachers) perceive mathematics. Many are already doing so, but their efforts may not be well known. This session invites papers on experiences and programs, successful or otherwise, which mathematicians have dared to try.

Innovations in Mathematics Courses Beyond Linear Algebra  
*Saturday and Sunday afternoons*

Janet L. Beery\*, University of Redlands, Department of Mathematics, 1200 E. Colton Ave, Redlands, CA 92373; (909) 793-2121; fax: (909) 793-2029; e-mail: beery@ultrix.uor.edu

Steven Morics, University of Redlands

Spurred by reforms in the lower division curriculum, mathematics educators now are making substantial revisions in upper division mathematics courses. We invite

papers describing significant changes in content and/or pedagogy (e.g., computer use, cooperative and/or constructive learning) in these courses. While papers about curricular changes in all advanced mathematics courses will be considered, preference may be given to courses not featured in paper sessions at recent national meetings.

Teaching and Learning Mathematics as a Laboratory Science  
*Sunday and Monday afternoons*

Marcelle Bessman\*, Department of Mathematics, Jacksonville University, Jacksonville, FL 32211; (904) 745-7300; fax: (904) 745-7573; e-mail: mbessma@junix.ju.edu

David Smith, Duke University

Computers and graphing calculators can be used as tools for exploration of mathematical concepts and constructs as well as for "discovery of mathematical truths." Through integrated use of this technology, the classroom becomes a laboratory for instruction and learning. For this session, the organizers invite papers which focus on uses of technology in the mathematics classroom.

### Submission Procedures for Contributed Paper Proposals

After you have selected a session to which you wish to contribute a paper, forward the following directly to the organizer (indicated above with an asterisk (\*)):

- the name(s) and address(es) of the author(s); and
- a one-page summary of your paper

The summary should enable the organizer(s) to evaluate the appropriateness of your paper for the selected session. Consequently, you should include as much detailed information as possible within the one-page limitation.

**Your summary must reach the designated organizer by Monday, April 22, 1996.** The organizer will acknowledge receipt of all paper summaries. You will receive notification from the organizer by May 10, 1996, whether your paper has been accepted. Please note that, unlike previous MathFests, there will be no published abstracts for this meeting.

Do not forward completed summaries to the MAA or the AMS. They are to be sent to the session organizer.



## Call for Proposals

### NSF K-12 Teacher Enhancement Projects

The Division of Elementary, Secondary, and Informal Education at the NSF has announced the next phase of its initiative to implement education reform at the school district level, extending the mathematics and science focus for grades K-8 to secondary school mathematics. "Local Systemic Change Through Teacher Enhancement in Mathematics, Grades 7-12" (LSCM) projects will continue a shift in focus from the professional development of the individual teacher to the professional development of the teacher within the whole school organization. Supported projects could be designed to impact all teachers of grades 7-12 mathematics or a subset thereof, such as all teachers of grades 9-12 mathematics. Projects may also include middle school teachers of grades 5-6 if their school environment is designed around clusters having a disciplinary focus and they are part of a comprehensive project that impacts teachers

of middle school mathematics. All projects are expected to focus on teacher enhancement with attention to the implementation of exemplary instructional materials, as well as participate in a standardized evaluation to ensure accountability and monitor progress.

School systems or coalitions of school districts, in partnership with organizations with a scientific or educational mission, are eligible to submit proposals. Projects must provide teacher enhancement for a minimum of one hundred teachers; each participating teacher must receive a minimum of 130 hours of professional development over the life of the project. The maximum request (which includes indirect costs) for an award is determined by multiplying the total number of participating teachers by \$4500. No more than \$1 million may be requested per project per year.

A preliminary proposal to the NSF Teacher Enhancement Program is required before a full proposal can be accepted. Preliminary proposals must be submitted no later than April 1, with full proposals post-marked no later than September 2. Proposals for planning grants do not require a preliminary proposal and will be received at NSF anytime.

Further information is contained in the Program Solicitation and Guidelines for *Local Systemic Change Through Teacher Enhancement in Mathematics, Grades 7-12* (NSF 95-145), which is available via e-mail (stisserve@nsf.gov) or as a printed publication via phone (703) 306-1130, fax (703) 644-4278, or written request to NSF Forms & Publications Unit, 4201 Wilson Blvd., Room P-15, Arlington, VA 22230. Individuals wishing to discuss potential LSCM projects should contact Dr. Diane Spresser at the NSF, (703) 306-1613; e-mail: dsprese@nsf.gov.

## 1996 STATS Workshops

Supported by the National Science Foundation, the Mathematical Association of America will conduct two week-long residential faculty development workshops in the summer of 1996. These STATS workshops are designed for mathematicians (and other college faculty) who teach courses in introductory statistics but have little formal training in the subject. Goals of the workshops are to help the faculty participants to:

- teach statistical thinking with more data and concepts, less theory, and fewer recipes
- explore active learning alternatives to the lecture method in their teaching of statistics
- use technology as an active learning tool in their statistics courses
- make effective use of authentic assessment practices in evaluating the work of their statistics students
- discover a myriad of print and electronic

resources for teaching statistics

- engender lasting collegial relationships among mathematicians who teach statistics.

Each workshop will feature sessions led by two leading statistics educators who are also applied statisticians. These sessions will involve workshop participants actively in their own learning by presenting topics and activities that lend themselves to direct use with students. Workshop participants will also work in teams to conduct a statistical project that involves designing the study and collecting data as well as analyzing the data and reporting the results.

Support from NSF covers room and board expenses for the week-long workshop and will also provide workshop materials related to teaching statistics. Participants or their institutions are expected to cover their own travel expenses and to have e-mail accounts. The schedule for the 1996 workshops is:

June 9-16, 1996, University of the Pacific, Stockton, California

June 16-23, 1996 Dickinson College, Carlisle, Pennsylvania

The application deadline is March 15, 1996. For more information and to receive application forms, please contact Jane Heckler, STATS Project Registrar, MAA, 1529 Eighteenth Street NW, Washington DC 20036-1385; (202) 387-5200; fax (202) 265-2384; e-mail: jheckler@maa.org. You may also direct questions to project directors Allan Rossman (rossman@dickinson.edu; (717) 245-1668) and Tom Short (short@monet.vill.edu; (610) 519-6961).

## NSF-CBMS Regional Research Conferences in the Mathematical Sciences

Contingent upon National Science Foundation funding, it is anticipated that three NSF-CBMS Regional Research Conferences will be held in the summer of 1996. These three will bring to 257 the total number of such conferences held in the twenty-eight year history of this NSF-CBMS Regional Research Conference Series.

These conferences are intended to stimulate interest and activity in mathematical research. Each five-day conference features a distinguished lecturer who delivers ten lectures on a topic of important current research in one sharply focused area of the mathematical sciences. The lecturer subsequently prepares an expository monograph based upon these lectures, which is normally published as a part of a regional conference series. Depending upon the conference topic, the monograph is published by the American Mathematical Society, the Society for Industrial and Applied Mathematics, or jointly by the American Statistical Association and the Institute of Mathematical Statistics.

Support for about thirty participants is provided and the conference organizer invites both established researchers and interested newcomers, including postdoctoral fellows and graduate students, to attend.

Pending NSF funding, the three conferences anticipated to be held in 1996 are:

Euler Products and Eisenstein Series  
Goro Shimura, lecturer

May 19–24, Texas Christian University  
Robert Doran, Ze-Li Dou, and George T. Gilbert, organizers  
(817)921-7335; r.doran@tcu.edu; z.dou@tcu.edu; g.gilbert@tcu.edu

Advances in Inverse Spectral Geometry  
Carolyn S. Gordon, lecturer  
June 24–28, Texas Tech University  
Lance D. Drager, Ruth E. Gornet, and Jeffrey M. Lee, organizers  
(806) 742-1429; (806) 742-2578; (806) 742-2574; drager@math.ttu.edu; gornet@math.ttu.edu; jlee@math.ttu.edu

Normal Surfaces and Decision Problems in 3-Manifolds  
J. Hyam Rubinstein, lecturer  
August 1996 (exact dates to be announced), University of California, Davis  
Joel Hass, organizer  
(916) 752-1082; hass@math.ucdavis.edu

Information about an individual conference may be obtained by contacting the conference organizer. Information about the series and guidelines for submitting proposals for future conferences may be obtained by writing or calling CBMS, 1529 18th St NW, Washington, DC 20036; (202) 293-1170; fax: (202) 265-2384. The closing date for submission of proposals for the 1997 series is April 1, 1996.

## NSF Undergraduate Faculty Enhancement Workshop

Teaching Undergraduate Geometry  
June 10-15, 1996

Cornell University  
This workshop is intended for college and university faculty who teach (or soon will teach) an undergraduate geometry course including courses typically attended by future or inservice teachers.

In the mornings, the participants will experience a learning and teaching environment that is innovative both in terms of content and in terms of teaching methods. The content will be the integration of geometries on plane, sphere, and other surfaces, presented through problems which emphasize experiencing the meanings in the geometry. Student explorations, small group learning, and writing assignments will be examined.

In the afternoons, there will be seminars and presentations on topics related to the workshop theme, including How to Write Good Exploratory Problems, Using Writing in Mathematics, Curriculum Developments in School Geometry, Using Computer Technology in Geometry, Formal versus Intuitive Knowing in Geometry. In addition, there will be ample free time for informal discussions and enjoyment of the geometry of nature in and around Ithaca.

Most of the housing and food expenses will be covered by the NSF for all participants. There are also expected to be NSF funds available to support travel costs for participating faculty from institutions with limited resources. The NSF will also support follow-up activities by the participants after the workshop, including local workshops, exchange of related classroom materials, and communication of experiences and ideas.

For more information and application procedures, contact: WWW <http://math.cornell.edu/~dwh>; or e-mail: [dwh@math.cornell.edu](mailto:dwh@math.cornell.edu); or write to Geometry Workshop, Dept. of Math, Cornell University, Ithaca, NY 14853-7901.

## Summer Seminar on Workshop Calculus for College & University Instructors

Using Interactive Pedagogies & Technology to Teach Fundamental Mathematical Concepts  
June 23–29, 1996

Exposure to interactive teaching methods; experience using Mac and IBM software tools, including a CAS, ISETL, and MBL/CBL tools; customization of curricular and assessment materials.

For more information, contact Joanne Weissman, Dept. of Math, Dickinson College, Carlisle, PA 17013; (717) 245-1857; e-mail: [weissman@dickinson.edu](mailto:weissman@dickinson.edu).

## Ohio Section 1996 Summer Short Course Actuarial Mathematics

The MAA Ohio Section will hold a summer short course in Actuarial Mathematics, June 3–5, 1996, on the campus of Marshall University in Huntington, West Virginia. The course will be conducted by Professor Matthew Carlton, a Ph.D. in math and a principal in American Benefit Corporation, an insurance consulting firm, where he has practiced for over two decades.

Topics will include an overview of the actuarial profession and the actuarial exams, employment prospects for new graduates, advancement opportunities, suggested courses for student advising, actuarial problems to apply in traditional mathematics courses, actuarial topics for seminars, the theory of interest, numerical analysis topics and mortality tables. Demonstrations will be in the area of pension mathematics, which is Carlton's specialty and which he feels is also the most interesting mathematically.

Lodging is available through local hotels and motels at competitive rates. Course registration fee is \$100, and the deadline for the \$50 deposit is May 3. Checks should be made payable to the Marshall University Research Corporation, and they should be marked "Actuarial Mathematics." Registrations may be sent to Actuarial Mathematics, Department of Mathematics, Marshall University, Huntington, WV 25755-2560. For more information, contact David Cusick at the above address; (304) 696-3038; e-mail: cusick@munxt01.mu.wvnet.edu. This announcement and any updates will be posted on the MAA Ohio Section home page.

## Program in Mathematics for Young Scientists (PROMYS)

**Boston University; June 30–August 10, 1996**

PROMYS offers a lively mathematical environment in which ambitious high school students explore the creative world of mathematics. Through their intensive efforts to solve a large assortment of unusually challenging problems in number theory, the participants practice the art of mathematical discovery—numerical exploration, formulation and critique of conjectures, and techniques of proof and generalization. More experienced participants may also study other advanced topics. Problem sets are accompanied by daily lectures given by research mathematicians with extensive experience in Professor Arnold Ross's longstanding Summer Mathematics Program at Ohio State University. In addition a highly competent staff of eighteen college-aged counselors lives in the dormitories and is always available to discuss mathematics with students. Each participant belongs to a problem-solving group which meets with a professional mathematician three times per week. Special lectures by outside speakers offer a

broad view of mathematics and its role in the sciences.

PROMYS is a residential program designed for sixty ambitious high school students entering grades 10 through 12. Admission decisions will be based on the following criteria: applicants' solutions to a set of challenging problems included with the application packet; teacher recommendations; high school transcripts; and the student essays explaining their interest in the program.

The estimated cost to participants is about \$1300 for room and board. Books may cost an additional \$100. Financial aid is available. PROMYS is dedicated to the principle that no student will be unable to attend because of financial need.

PROMYS is directed by Professor Glenn Stevens. For application materials, contact PROMYS, Dept. of Math, Boston University, 111 Cummington St., Boston, MA 02215; (617) 353-2563. Applications will be accepted from March 1 until June 1.

## ATLAST 1996 Linear Algebra Workshops

ATLAST is an NSF Project to Augment the Teaching of Linear Algebra through the use of Software Tools. The project will offer two faculty workshops on the use of software in teaching linear algebra during the summer of 1996:

**Salve Regina University, Newport, RI  
June 12–15**

**University of California San Diego, La  
Jolla, CA July 24–27**

Workshop participants will learn about existing software for linear algebra and will be trained in the use of the MATLAB software package. Attendees will design classroom lessons that incorporate computer software making use of ATLAST materials that were developed in previous workshops. These materials will be included in the forthcoming *ATLAST Book of Computer Exercises* (Prentice-Hall, fall 1996). Participants will also learn to design computer exercises and lab projects for inclusion in the ATLAST database and possible inclusion in future editions of the ATLAST book.

The ATLAST Project provides room and board for participants attending the workshops. All teachers of undergraduate linear algebra courses at colleges or universities in the USA are invited to apply. The deadline for applications is March 21, 1996. Late applications will be accepted on a space available basis.

Contact Steven J. Leon, Department of Mathematics, University of Massachusetts Dartmouth, North Dartmouth, MA 02747-2300; (508) 999-8320; fax: (508) 999-8901; e-mail: ATLAST@UMASSD.EDU

## Reform Calculus Shortcourse Calculus Enhanced with Computer-Algebra and Graphing Using the TI-92

University of Massachusetts Amherst

June 24–28, 1996

College and university faculty and high school calculus instructors are invited to attend. Each participant will have loan of a TI-92 for the week. Computer-based laboratory instruments will also be available for data collection. Real-world applications and other calculus reform pedagogy will be featured.

Continental breakfast, lunch, snacks, and instructional materials will be provided. Texas Instruments will have reduced prices on the TI-82 (\$55), TI-85 (\$60), CBL (\$110), and TI-92 (\$120). (Prices subject to change.)

The presenter is Joe Fiedler (Ohio State University) and the guest lecturer is Frank Demana (Ohio State University). Applicants will be accepted on a first come-first served basis upon receipt of the \$150 registration fee. Conference rates are available at the Campus Center Hotel. Checks are payable to University of Massachusetts Amherst Mathematics Department and should be mailed to Dr. Mary Ann Connors, Dept. of Mathematics and Statistics, Lederle Graduate Research Tower, University of Massachusetts, Amherst, MA 01003; (413) 545-0907; e-mail: mconnors@math.umass.edu.

## Call for Papers

### Symposium on Teaching Logic and Reasoning in an Illogical World

Rutgers University, Piscataway, New Jersey

July 25-26, 1996

Sponsored jointly by the DIMACS Special Year on Logic and Algorithms, Rutgers University, and the Association for Symbolic Logic in conjunction with the Federated Logic Conference, the symposium will explore the teaching of introductory logic and logical thinking, with a primary focus on the college level and a secondary focus on the high school level. The symposium will be interdisciplinary, emphasizing and contrasting approaches used in mathematics, computer science, natural sciences, and engineering. Topics of interest include but are not limited to Pedagogical Approaches and Cognitive Models of Logical Reasoning, Empirical Studies and Exemplary Course Material, Innovative Approaches and Courseware for Teaching Logic.

Please submit an extended abstract of at most four pages to David Gries, Computer Science, Upson Hall, Cornell University, Ithaca, NY 14853; e-mail: lmc@cs.cornell.edu (e-mail in postscript form is preferred). The deadline for submissions is April 1. Notification of acceptance will be May 1.

For further information, contact Peter Henderson, Dept. of Computer Science, SUNY Stony Brook, Stony Brook, NY 11794-4400; (516) 632-8463; e-mail: pbh@cs.sunysb.edu.

## History of Mathematics Institute

Would you like to teach a course in the history of mathematics? Does your college or university plan to offer such a course soon for prospective teachers to implement the recommendations of the MAA, NCTM, and NCATE? Do you want to learn how the history of mathematics will help you in teaching other mathematics courses?

If you answered yes to any of these questions, you are invited to apply to participate in the second MAA Institute in the History of Mathematics and its Use in Teaching. It will take place at American University, Washington, DC, June 3–21, 1996, with work continuing through an electronic network during the academic year 1996–97. Participants will return to Washington for three additional weeks in June 1997. The teaching staff of the institute consists of well known historians of mathematics, including V. Frederick Rickey, Victor J. Katz, Steven H. Schot, Ronald Calinger, Ubiratan D'Ambrosio, Judy Green, Uta Merzbach, David Pengelley, James Donaldson, and Karen Parshall. Activities at the institute include reading of original sources, survey lectures, small group projects, trips to rare book libraries, and discussions of methods of conducting a history of mathematics course and of using history in the teaching of other mathematics courses. Participants will also have the opportunity to interact with mathematicians who will be returning to the institute for their second year.

Applications are strongly encouraged from faculty at small institutions, at minority-serving institutions, and institutions that prepare secondary teachers.

For more information and application forms, contact V. Frederick Rickey at (419) 372-7452 or Victor J. Katz at (202) 274-5374; or preferably by e-mail: rickey@maa.org or vkatz@maa.org. Applications are due by March 15, 1996. Applicants will be notified of their acceptance or declination by April 15, 1996.



# New from the MAA

## From Erdős to Kiev

### Problems of Olympiad Caliber

*Ross Honsberger*

Ross Honsberger sums up his reason for writing his latest book this way,

"A proof can be a wonderful thing, and it is my hope that the reader will be thrilled by a leisurely presentation of some of the things that have fascinated me. Writing to give pleasure is far different from writing to instruct, and I hope this is evident in the style of presentation. It does wonders for readers' attitudes if they believe that your only interest is to show them something beautiful; such a conviction is strong encouragement for them to commit to the level of concentration necessary for the appreciation of these gems."

Ross Honsberger's love of mathematics comes through very clearly in **From Erdős to Kiev**. He presents intriguing, stimulating problems that can be solved with elementary mathematical techniques. It will give pleasure to motivated students and their teachers, but it will also appeal to anyone who enjoys a mathematical challenge.

Most of the problems in the collection have appeared on national or international Olympiads or other contest. Thus, they are quite challenging (with solutions that are all the more rewarding). The solutions use straightforward arguments from elementary mathematics (often not very technical arguments) with only the occasional foray into sophisticated or advanced ideas. Anyone with a facility with high school mathematics is capable of appreciating a large part of the book.

The problems included in this collection are taken from geometry, number theory, probability, and combinatorics. Solutions to the problems are included.

Catalog Code: DOL-17/FOC

250 pp., Paper, 1995

ISBN-0-88385-324-8

List: \$31.00 MAA Member: \$23.50

From Martin Gardner—

Mathematical jokes, mathematical magic, and a dose of fun

## New Mathematical Diversions

*Martin Gardner*

*A revised version of a book previously published by University of Chicago Press.*

*Instructive reading for students, teachers, mathematicians at all levels,  
as well as interested laypersons.*

Offered here are twenty reprints from Martin Gardner's monthly corner in *Scientific American*. Gardner tells us that his book is a book of "mathematical jokes," if "joke" is taken in a sense broad enough to include any kind of mathematics that is mixed with a strong element of fun. Readers of this book will be treated to a heavy dose of fun, and they will learn a lot about mathematics along the way.

Martin Gardner instructs us about mathematics as he entertains us with wit and a sense of the absurd. He stimulates, challenges, and delights his readers. Martin Hollis (in *New Scientist*) says it best when he says of Gardner's work, "Should you ever need to explain subatomic particles to a Stone-age man, send for Martin Gardner...He leaves open questions open, conveys the thrill of the chase and deals flawlessly with hard and simple ideas alike."

Some of the problems you will find here are:

- Group Theory and Braids
- The Games and Puzzles of Lewis Carroll
- The Transcendental Number Pi
- Victor Eigen: Mathemagician
- Polyominoes and Fault-Free Rectangles
- Euler's Spoilers: The Discovery of an Order-10 Graeco-Latin Square
- The 24 Color Squares and the 30 Color Cubes
- Bridg-it and Other Games

Answers are provided for these problems, as well as references for further reading and a bibliography. Martin Gardner's Postscript section provides updates to the problems.

Catalog Code: DIVER/FOC

272 pp., Paperbound, 1995

ISBN 0-88385-517-8

List: \$19.95 MAA Member: \$16.50

**Call 1-800-331-1622,  
or use order form on page 38**

# New from the MAA

## A Practical Guide to Cooperative Learning in Collegiate Mathematics

*Nancy L. Hagelgans, Barbara E. Reynolds, Keith E. Schwingendorf, Draga Vidakovic, Ed Dubinsky, Mazen Shahin, G. Joseph Wimbish, Jr.*

This book will greatly help readers introduce cooperative learning in their own undergraduate mathematics classes. Instructors who have tried some group activities as well as those who have not been involved at all with cooperative learning will find here detailed, useful discussions on every aspect of cooperative learning. The book reflects the extensive experience of the authors as well as that of over forty colleagues who responded to a survey on cooperative learning. Throughout the book cooperative learning is related to educational research results, which are clearly explained in one chapter.

The authors' approach to cooperative learning involves students working in heterogeneous groups, usually assigned for the duration of the course. Students become responsible for each others' learning since the cooperative spirit permeates every facet of the course; homework, laboratory assignments, classes, and even some tests.

The book includes directions for organizing students into groups as well as complete descriptions of what these groups do once they are formed. Examples of group problems and group test questions for various mathematics courses illustrate the work that can be expected of students in cooperative learning groups. The authors present methods for monitoring groups and dealing with problems that may arise in a cooperative learning environment. They also address the question of student assessment.

In addition to descriptions of their own methods, the authors include a chapter that

## Models that Work

### Case Studies in Effective Mathematics Programs

*Alan C. Tucker, Editor*

A wonderful resource for anyone who wants to improve their undergraduate mathematics programs. Here are samples of programs that really do work!

This study focuses on key aspects of the undergraduate mathematics enterprise.

- effective instruction
- advising
- tailoring the curriculum to students' needs
- interactions between students and mathematics faculty.

If you are a faculty member seeking to improve your undergraduate program, you will find useful information in this volume. It offers summaries of effective practices at a set of mathematics departments that are:

- attracting and training large numbers of mathematics majors;
- preparing students to pursue advanced study in mathematics;
- preparing future school mathematics teachers; or
- attracting and training underrepresented groups in mathematics.

summarizes forms of cooperative learning used by others. An extensive and annotated bibliography is also included. This book is a valuable resource for any instructor who uses cooperative learning groups in an undergraduate mathematics class.

The report describes general attitudes and strategies as well as particular activities that are effective. Based on the site visits, it suggests ways that you can create and sustain an environment that will foster such attitudes and activities at your own institution. The institutions profiled span the spectrum from two-year colleges to research universities.

The site visits reveal that there is no single key to a successful undergraduate program in mathematics. Almost any approach can be made to work in almost any institutional context if your mathematical faculty care deeply about undergraduate education, if they create an atmosphere where faculty and students view the study of mathematics as important and rewarding, and if they maintain close interactions with their students.

There is much to be learned from these "models that work" that we can apply at our own institutions.

**Catalog Code: NTE-38/FOC**

ISBN-0-88385

112 pp., 1995

List: \$24.00 MAA Member: \$18.00

**Catalog Number: NTE-37/FOC**

190 pp., Paperbound, 1995

ISBN 0-88385-096-6

List: \$24.00 MAA Member: \$18.00

**Call 1-800-331-1622,  
or use order form on page 38**

## FOCUS on Sections 1994–95

This is the annual report from the MAA Committee on Sections to the MAA membership on the activities of the twenty-nine MAA sections for the academic year 1994–95. As the report reveals, the twenty-nine sections of the MAA continue their rich and diverse activities in celebration of mathematics at the regional level. Cooperation among sections continues, including joint meetings. Cooperation between MAA sections and other regional mathematical organizations such as the AMS, the states' mathematics coalitions and SSIs, statewide affiliates of the NCTM and of AMATYC, Pi Mu Epsilon and Mu Alpha Theta, is also much in evidence this year. The sections show much continuing work to provide services and programs for students, student members, and MAA Student Chapters. Included are award programs, competitions, conferences, lecture series, minicourses, student paper sessions and poster sessions, and regional or local subsectional meetings of MAA Student Chapters. Because of the work of the individual MAA sections, the MAA's national program to recognize excellence in mathematics teaching continues strong. This process culminated again this year in the presentations of the three national Deborah and Franklin Tepper Haimo Awards for Distinguished College or University Teaching of Mathematics at the national joint meeting of the MAA and the AMS in San Francisco in January 1995.

The Committee on Sections is pleased to offer this report of the activities of the twenty-nine sections of the MAA.

**Allegheny Mountain Section's** spring 1995 meeting, held April 7–8 at Duquesne University, Pittsburgh, Pennsylvania, featured the minicourse "The Perfect Card Shuffle," by S. Brent Morris and four invited addresses: "Soap Bubble Clusters and Current Research, Some by Undergraduates," by Frank Morgan (Williams College), "The Abstract Key of Mathematics," by Jerry King (Lehigh University), "Mathematical Puzzles," by Barbara Faires (Westminster College), and "Was Cauchy a Revolutionary?" by David Bressoud (Macalester College). Contrib-

uted paper sessions included thirteen faculty and thirteen student papers. The section's Distinguished Teaching Award was presented to Donato (Dan) DeFelice of Duquesne University, and the section's Distinguished Service Award was presented to Barbara Faires at the annual joint MAA–AMS mathematics meetings in San Francisco in January 1995. The section's eleventh annual summer short course, "Modular Forms, Elliptic Curves, and Fermat's Last Theorem," presented by Fernando Gouvea (Colby College), was held at Allegheny College for the five days June 26–30.

The Allegheny Mountain Section is pleased about the level of student involvement in its meetings. The section has a Student Program Coordinator available for consultation to all MAA Student Chapters within the section, and it gives grants to student chapters for special projects, such as the open house/career workshop hosted this year by the MAA Student Chapter at Shephard College. Through high school principals, the section awards MAA books to high-scoring students on the AHSME competitions in the section.

**EPADEL Section** held two meetings. The fall meeting was held on November 5, 1994 at Montgomery County Community College. There were four invited addresses: "Ruin and Riches from Bachelier to Black-Scholes," by J. Michael Steele (Wharton School, University of Pennsylvania); "Inference Beyond Logic," by Karvel Thornber (NEC Research Institute); "Portfolio and Student Self-Assessment in an Undergraduate Calculus Course," by Lyn Stallings (American University); and "Bifurcation, Catastrophe, Singularity, and All That," by James P. Fink (Gettysburg College). The theme of the spring meeting, April 8, 1995 at King's College, was "Interactive Text Materials." There were five invited addresses: "Calculus & *Mathematica*," by William J. Davis (Ohio State University); "Teaching Students to Play: The Promise of Interactive Workbooks," by James White (University of North Carolina, Institute for Academic Technology); "Explorations in Mathematics Using *MathKit*," by Charles E. Hofmann (LaSalle University) and Roseanne S. Hofman (Montgomery County Community College); "Interactive Linear Algebra in *MathCad*," by David R.

Hill (Temple University) and Gerald J. Porter (University of Pennsylvania); and "MAPLE Projects for Differential Equations and Linear Algebra," by Charles E. Ashley (Villanova University). Both meetings included sessions for student-contributed papers, which drew twelve student speakers from eight institutions. Each student presenter received a framed certificate commemorating the event. Patricia Purdue of Bryn Mawr College won the Student Paper Contest. The section presented its 1995 EPADEL Section Distinguished Teaching Award to Herbert S. Wilf (University of Pennsylvania). The section presents each winner of this award with \$500 for the purchase of mathematics books for the awardee's department or institutional library. The section offered a five-day summer workshop in 1995 at Messiah College in Grantham, Pennsylvania, titled "Interdisciplinary Lively Applications Projects." The three presenters were Frank Giordano (United States Military Academy), David Chris Arney, and Kathy Snook. Messiah College was also the site of the EPADEL Section's Student Careers Conference in October 1995. At this biannual event, the section offers student chapters ideas for local chapter activities and notice of programs at the section and national levels. Other activities the section conducts for students are contributed paper sessions for students at section meetings and an annual Student Paper Contest, whose winner is honored at the section's spring meeting. The section notes that their two meetings attracted more student participants than have previous meetings.

**The Florida Section's** annual meeting was held at Valencia Community College in Orlando, March 2–3, 1995. At this meeting, the section presented its Award for Distinguished College or University Teaching of Mathematics to Donovan Lichtenberg (University of South Florida) and its Distinguished Service Award to Bruce Edwards (University of Florida). For the first time, the section ran a career fair for students in the central Florida region who were honor roll students on the 1994 American Junior High School Mathematics Exam. Industry representatives participated in the fair and made presentations of awards. Held at the University of Central Florida and sponsored by the MAA Committee on Student Chapters and the

Exxon Foundation, the fair was videotaped and has been made available to MAA Student Chapters in the section. Information about the project is available from Lee H. Armstrong, governor of the Florida Section. In further efforts to involve students, the section helped fund two students to go to the joint MAA-AMS MathFest in Minneapolis, August 1994. The section held five regional conferences in addition to its annual meeting. These regional conferences are a strength of the Florida Section, and collectively attract more participation than the single annual meeting.

**Illinois Section's** seventy-fourth annual meeting was held March 31–April 1, 1995, at Monmouth College in Monmouth. John Haverhals (Bradley University), the section's director for private colleges, served as program chair and Lyle Welch (Monmouth College) was local arrangements chair. There were 123 registrants. The program included eleven invited lectures, three student papers, and three panel discussions. Deborah Hughes Hallett (Harvard University) gave the opening address on Friday, "Mathematics Education Reform: Where is it Taking Us? Do We Want to Go There?" Doris Schattschneider (Moravian College) gave the opening address on Saturday, "Mathematical Work of Ingenious Amateurs—Escher and Marjorie Rice." Robert Hogg (University of Iowa) gave the banquet address, "Lessons Learned from Hogg's 1991 Quality Journey: Are Faculty Ready for Continuous Quality Improvement?" S. Brent Morris (National Security Agency) gave the closing address on "Magic Tricks, Card Shuffling, and Dynamic Computer Memory." Panel discussions concerned the content preparation of elementary teachers; mathematics in general education; and mathematical resources on the Internet. Hughes-Hallett led a minicourse, "The Harvard Calculus Project." At the meeting, student teams participated in a mathematics contest arranged by J.B. Stephen (Northern Illinois University), the section's student chapter coordinator. The section presented its Distinguished Service Award to Barbara Juister (Elgin Community College) and its Award for Distinguished College or University Teaching to Linda R. Sons (Northern Illinois University). The Illinois Section sponsors an active high school lecture program which brings mathematicians from col-

leges, universities, or businesses to high school classes or mathematics clubs. The section helped to get a proclamation from the governor of the state of Illinois in recognition of Mathematics Awareness Week in April 1995. Two new activities are a careful study of the role and mission of the Illinois Section and a joint task force on the mathematical training of elementary teachers in conjunction with the Illinois Council of Teachers of Mathematics (ICTM) and the Illinois Mathematics Association of Community Colleges (IMACC).

The **Indiana Section** rearranged its meeting schedule in 1994–95, now holding a one-day meeting in the fall and a two-day meeting in the spring. The fall 1994 meeting was held October 8 at Indiana University–Purdue University, Indianapolis, and featured a presentation by Bart Braden, editor of the *College Mathematics Journal*. The thirtieth annual Indiana College Mathematics Competition was the opening event of the spring 1995 meeting held at Tri-State University in Angola. Twenty-three teams of undergraduate students participated; a team from Indiana University, Bloomington, took first place. The section subsidized student expenses at the meeting and was pleased at the high level of student participation. Featured speakers at the spring meeting were Fred Rickey (Bowling Green State University) speaking on "The History of Improper Integrals," and David Bressoud (Macalester College), whose title was "Was Cauchy a Revolutionary?" The program included three briefings on issues facing college mathematicians, followed by breakout sessions for discussions. These were led by Cathy Murphy (Purdue University, Calumet), Rick Gillman (Valparaiso University), and Donald Miller (St. Mary's College). The section honored its 1995 award recipients: Carl Cowen (Purdue University) received the section's Award for Distinguished College or University Teaching of Mathematics; Duane Deal (Ball State University) received the section's Award for Meritorious Service.

The **Intermountain Section** held its annual meeting at Idaho State University, April 7–8, 1995. Donald R. Snow (Brigham Young University) presented a short course on Combinatorics via Functional Equations. Dennis C. Stowe (Idaho

State University) presented an invited address, "The Area Theorem," and Leonard Gillman (University of Texas) presented two addresses, "Mathematics and the Public" and "Some Irreverent Thoughts about Teaching." The most well attended meeting of the section in recent memory, this meeting attracted 154 participants who enjoyed thirty-nine contributed papers, sixteen of which were by students. There were two panel discussions, "Mentoring Programs in Mathematics," chaired by Carolyn Tucker (Westminster College) and "The IAS Park City Mathematics Institute," chaired by Robert J. Fisher (Idaho State University). A highlight of the meeting was a pre-dinner classical music concert of Bach, Mozart, and Donatelli, presented by Gillman on piano and Professor Patricia George, of the ISU Department of Music, on flute. The section's Award for Distinguished College or University Teaching was given to Wayne W. Barrett (Brigham Young University) and the Award for Meritorious Service was given to Donald W. Robinson (Brigham Young University), who was also honored at a presentation at the national meetings in San Francisco, January 1995. The section's travelling trophy for the top AHSME team went to Idaho Falls High School.

This year's annual meeting of the **Iowa Section** was held jointly with IMATYC at the University of Northern Iowa in Cedar Falls, April 21–22, 1995. The seventy-six registrants enjoyed three invited addresses: "NSF Surveys of East European Mathematical Literature at the University of Chicago," by Izaak Wirszup (University of Chicago); "University of Chicago School Mathematics Project (UCSMP): Toward World-Class Standards in Mathematics Education," also by Wirszup; and "Mathematical Puzzles (With a Glimpse at MAA Projects)," by Barbara Faires (Westminster College). There were twenty contributed papers by mathematics faculty and fourteen by students. The section presented some films that were of interest especially to students. This year an anonymous donor established a fund for the support of the Iowa MAA Mathematics Competition, and the section has now conducted its first round of this competition under the leadership of Charles Frohman (University of Iowa). A team from Iowa State University is the first



winner of the the travelling trophy, a blown glass Klein Bottle atop a wooden base. The section elected Jim Freeman (Cornell College) as its chair-elect. Greg Doseh (University of Northern Iowa) has become chair of the section, replacing Emily Moore (Grinnell College). The section presented its Distinguished College and University Teaching Award to Elgin Johnston (Iowa State University) and it recognized its twenty-five- and twenty-five-plus-year members.

The **Kentucky Section** held meetings on March 31 and April 1, 1995 at Transylvania University, with a total attendance of 143. The program included a short course in mathematical modelling by Douglas D. Mooney and Randall J. Swift (Western Kentucky University), which included an opportunity to try some software that Mooney and Swift use in the modeling course they developed. The invited address, "Mathematical Modeling of Sub-surface Flow and Transport," by Mary Fanett Wheeler (Rice University) was followed by the section's traditional social, "Aftermath." A piano and flute concert by Leonard Gillman (University of Texas), piano, and Charles W. Smith (Western Kentucky University), flute, preceded the Friday evening banquet. Gillman gave the invited address, "Some Irreverent Thoughts on the Teaching of Mathematics." Patricia Draper (AT&T Bell Labs) gave the invited address, "Applications in Active Vibration Control" for students, supported by an Exxon grant. The section presented its Award for Distinguished College or University Teaching of Mathematics to W. Wiley Williams (University of Louisville).

**Louisiana-Mississippi Section** held its annual meeting in Biloxi, Mississippi, March 2-4, 1995. The program for the 264 attenders included two invited addresses, twenty contributed papers, eleven student-contributed papers, five panel discussions, a recital, a reception, and a meeting of Department Chairs. Paul Waltman (Emory University) presented a workshop on mathematical modelling. The section gave its Award for Distinguished University Teaching of Mathematics to Steve Ligh of Southeastern Louisiana University. The section gave awards of savings bonds and books to the four best undergraduate student presenters of papers at its meeting,

gave books to two graduate student paper-presenters, and awarded cash prizes to the top three Putnam Exam teams in the section.

The **Maryland-DC-Virginia Section** held two meetings, November 11-12, 1994 at Western Maryland College in Westminster, Maryland, and April 7-8, 1995 at Thomas Nelson Community College in Hampton, Virginia, enrolling 110 and 168 people, respectively. The fall meeting included the short course, "Introduction to the HP 48G Graphing Calculator," by Jack Clark (Western Maryland College). There were twenty-two contributed papers and two invited addresses. The spring meeting included the workshops "The Mathematics Archives," by Przemyslaw Bogacki (Old Dominion University); "A Mathematics Educator's Guide to the Internet," by Jon W. Scott (Montgomery College) and Elizabeth J. Teles (National Science Foundation); and "Environmental Mathematics," by Ben Fusaro (Salisbury State University). Christopher Schaufele (Kennesaw State College) delivered the invited address, "Earth Math: PreCalculus with an Environmental Focus." There were thirty-six contributed papers, six by students. Also at its spring meeting, the section arranged a private tour of the Virginia Air and Space Museum and held a social hour and its banquet there, followed by a private showing of the IMAX film, "Destiny in Space." The section held a breakfast meeting for its MAA department representatives. The section presented cash prizes to students who achieved honorable mentions or higher on the Putnam Exam. I-Lok Chang (American University) received the section's award for distinguished teaching. Howard Lewis Penn (United States Naval Academy) was given the Maryland-DC-Virginia Section's Certificate of Meritorious Service at the national joint MAA-AMS meetings in San Francisco. The section conducted a free five-day summer workshop, "Mathematics Laboratories with *Derive*," by Marvin Brubaker (Messiah College) and Carl Leinbach (Gettysburg College).

The fifty-fourth annual meeting of the **Metropolitan New York Section** was held on May 6, 1995 at Hunter College (CUNY). The fifty-two people attending heard two invited addresses, "Henry

Moore Isomorphisms: Giacometti Fractals and Stone Monoprints," by Nathaniel Friedman (SUNY Albany); and "The Theory of Moves: A Dynamic Approach to Game Theory," by Stephen Brams (New York University); and the panel discussion, "Mathematics in Business and the Physical Sciences," by Robert Bumcrot (Hofstra University), Florence Gordon (New York Institute of Technology), and Joseph Malkevitch (York College, CUNY). Alan C. Tucker (SUNY Stonybrook), chair-elect of the section, led a memorial to his father, Albert William Tucker of Princeton University, former president of the MAA. The section presented its 1995 Award for Distinguished College or University Teaching to Gerald S. Lieblich (Bronx Community College, CUNY). Professor Bumcrot announced the names of students in the section who had done well in mathematics competitions, and awarded the section's Salkind Trophy and Abraham Schwartz Award. The section ran its annual Mathematics Fair, enjoying the enthusiasm of its judges and its student participants. Again this year the section obtained proclamations from both Governor George E. Pataki and Mayor Rudolph W. Giuliani, in recognition of Mathematics Awareness Week in the State and City of New York, respectively.

The annual meeting of the **Missouri Section** was held jointly with the Missouri Mathematics Association for the Advancement of Teacher Training (MMAATT) and the Missouri Mathematics Association of Two-Year Colleges (MOMATYC) in Warrensburg, Missouri, April 7-8, 1995. One hundred thirty-eight people participated, including twelve students. The MAA program included three shortcourses: "Bayesian Methods to Utilize Local Subjective Decisions in Decision Making with Applications to Grading," by Shriniwas K. Katti (University of Missouri, Columbia); "TeX and LaTeX: A Gentle Introduction," by Scotty L. Orr, Hang Chen, and Curtis N. Cooper (all from Central Missouri State University); and "Interacting with the Internet," by Majid Saadatmanesh and L. Vincent Edmondson (Central Missouri State University). The group heard the three invited addresses, "Unexpected Applications of Linear Algebra in Graph Theory," by Allen J. Schwenk (Western Michigan Univer-

sity); "A Plethora of Perplexingly Persistent Simpson's Paradoxes," also by Schwenk; and "The Mathematics of Card Shuffling," by MAA President Ken Ross (University of Oregon). There were thirty-one contributed papers, eleven student papers, and the three panel discussions: an Exxon-supported student careers panel, moderated by Carrie Arndt (Central Missouri State University); the MOMATYC panel discussion, "Alternative Courses to College Algebra," moderated by Larry Martin (MSSC); and "Course Development for Middle School Certification: A Progress Report," by Linda Lembke (Central Methodist College), David Ewing (Central Missouri State University), and John Hewett (University of Missouri, Columbia). There was an interactive TV demonstration by Rhonda McKee and William Grimes (both from Central Missouri State University). The MMAATT held a panel discussion on the middle-school curriculum, and the MMATYC offered a panel discussion on the alternatives to college algebra. The MAA and a private foundation helped sponsor the invited speakers, and an Exxon grant supported a student career panel discussion. All student presenters of papers were given certificates at the section's business meeting, where the section also endorsed the award of cash prizes to its top AHSME performers.

The **New Jersey Section** held two meetings along with the Mathematical Association of Two-Year Colleges of New Jersey (MATYCNJ). The fall meeting was held on November 19, 1994, hosted by Sr. Stephanie Sloyan. The invited speakers were MAA Pólya Lecturer Carl Pomerance (University of Georgia); V. Frederick Rickey (Bowling Green State University); Ingrid Daubechies (Princeton University); and Paul Zorn (St. Olaf College). The spring meeting was held on April 29, 1995, hosted by Sandeep Maheshwari, where invited addresses were given by Anneli Lax (NYU-Courant), editor of the *New Mathematical Library* book series; Michio Kaku (The Graduate Center and City College, CUNY); Leonard Charlap (Center for Communications Research, IDA); and Ivars Peterson, the Mathematics and Physics editor of *Science News*. Selina Thompson (Middlesex County College), president of MATYCNJ, and Barbara Osofsky (Rutgers University) offered

opening remarks at the morning and afternoon sessions, respectively. The section awarded its 1995 Award for Distinguished College or University Teaching of Mathematics to Sigfried Haenisch (Trenton State College) at its spring meeting. The section's Award for Meritorious Service was presented to Theresa C. Michnowicz (Jersey City State College) at the national joint meetings in San Francisco, January 1995.

The **Northeastern Section** had a very successful year, presenting two section meetings, six regional speaker/dinner meetings, a minicourse, a six-day summer short course, and an innovative interdisciplinary mathematical lecture/musical concert. The fall 1994 meeting of the section was at the University of Hartford, Hartford, Connecticut, November 18–19. It attracted 163 participants, thirty-three of whom were students. There were ten invited addresses and four contributed papers. A workshop, "Generalization and Variation as Applied to Combinatorics and Graph Theory," funded with help from Exxon, was presented by Joseph Gallian (University of Minnesota at Duluth). As is traditional in this section's fall meetings, this workshop was organized for students. At its spring 1995 meeting at Bates College in Lewiston, Maine, the Northeastern Section offered nine invited addresses and a workshop, "Geometry Workshop: Connected Geometry," by Al Cuoco (Educational Development Center). The section was pleased to include a lecture by MAA Pólya Lecturer Carl Pomerance at the spring meeting. This year the section proudly gave its Award for Distinguished College or University Teaching of Mathematics to Thomas F. Banchoff (Brown University), and was proud to see its previous awardee, Robert L. Devaney (Boston University), among the three recipients of the national 1995 Deborah and Franklin Tepper Haimo Distinguished Teaching Awards in January at the national joint meetings in San Francisco. It will award its Howard Eves Award for Meritorious Service at its fall 1995 meeting. This award was first presented in 1990 and is given every five years. The Northeastern Section is distinguished among MAA sections for its program of regional dinner meetings with mathematical speakers. This year it offered six dinner meetings, involving the following six speakers: Peter Hilton

(SUNY Binghamton), "Code-Breaking with Alan Turing"; Frank Morgan (Williams College), "Soap Bubbles, Clusters, and Undergraduate Research"; Daniel Teague (North Carolina School of Mathematics and Science), "Mathematical Modeling in Elementary Calculus"; Marjorie Senechal (Smith College), "From Symmetry to Disorder: A Paradigm Shift"; Thomas F. Banchoff (Brown University), "Visualizing Across Dimensions: From Flatland to Interactive Hypergraphics"; and a panel discussion, "The Bridge Course: The First Course in Proofs for Undergraduate Mathematics Majors," by David Abrahamson (Rhode Island College), Clement DeMayo (Providence College), and Earl Gladue (Roger Williams University). This very active section's annual summer short course was held at the University of Maine, in Orono, June 18–23, 1995, on the topic, "Calculus Reform With Emphasis on the St. Olaf Project," led by Arnold Ostabee and Paul Zorn. All expenses for the minicourse were funded by the NSF except participants' travel and a \$20 acceptance fee. This year's minicourse was "An Introduction to Research in the Teaching and Learning of Undergraduate Mathematics," by Joan Ferrini-Mundy (University of New Hampshire) and Karen Graham (University of New Hampshire). This minicourse was attended by a wide variety of high school, two-year, and four-year college teachers, and included work with students from Boston University. The section's innovative interdisciplinary event, "Mathematical Aspects of the Music of Bach," presented by Victor E. Hill (Williams College), took place at the Fine Arts Center of Regis College, and was well attended by mathematicians and non-mathematicians together. This lecture/concert was funded in part by a grant from the MAA Fund for the Aid of Sections, through the MAA's national office and the Committee on Sections. The section advertises its programs electronically via the *Mathematical Gazette*.

The **North Central Section** held its fall meeting at Minot State University, October 28–29, 1994. The meeting featured invited addresses by Jerry Bergum (South Dakota State University) and Izak Kornfeld (North Dakota State University). Larry Atwood (Minot State University) presented a workshop on The Internet:

Methods and Resources. There were eight contributed papers and one student paper. The section's spring meeting was held April 21–22, 1995 at Carleton College in Northfield, Minnesota, with 120 people attending. Mark Krusemeyer (Carleton College), 1994 winner of the section's Award for Distinguished College or University Teaching of Mathematics, and Jerry Porter (University of Pennsylvania), treasurer of the MAA, gave the invited addresses, "Sabbatical Dearnms" and "Linear Algebra as a Laboratory Course," respectively. There were twelve contributed papers and one student paper. Professor Emeritus Murray Braden (Macalaster College) was honored with the section's Meritorious Service Award. Professor Clayton Knoshaug (Bemidji State University) received the section's Distinguished Teaching Award. In what is thought to be the first such occurrence in the MAA, the section's new President-Elect, Gail Nelson (Carleton College), succeeds her father, Edward O. Nelson (University of North Dakota), who was president of the North Central Section in 1969–1970.

The **Northern California Section's** usual February meeting was postponed this year in order that the section meet jointly with the Southern California Section October 20–22, 1995. That special joint meeting was hosted by The California Polytechnic State University in San Luis Obispo, and will celebrate the seventieth anniversary of the founding of the Southern California Section. Invited addresses are scheduled by Donald J. Albers (associate executive director, MAA), Tom M. Apostol (California Institute of Technology), Judith V. Grabiner (Pitzer College), John H. Conway (Princeton University), and William P. Thurston (MSRI). Organized by Barbara J. Beechler (Pitzer College) and Don Goldberg (Occidental College), the trip included six focused discussion groups on mathematical topics.

The **Ohio Section** held its fall 1994 meeting at the University of Findlay, in Findlay, Ohio, October 28–29, 1994 and its spring 1995 meeting at the Ohio State University in Columbus, Ohio, April 21–22, 1995. The fall meeting featured Keith Devlin, editor of FOCUS, as both keynote speaker and banquet speaker. Also featured were Richard Lesh (Educational Testing Service), and Ed Dubinsky (Purdue Univer-

sity) speaking on the problems of reform, content, initiative, and assessment. The spring meeting was a joint meeting with the Ohio Mathematical Association of Two-Year Colleges, the first such joint meeting of the two organizations. Grahame Bennett was the keynote speaker. Phillip Cheifetz (Nassau Community College) spoke on the Harvard Calculus Reform Project, and Frank Demana and Bert Waits (Ohio State University) spoke on the new TI calculator. The meeting included a two-hour microcourse for students, titled "The Mathematics of Epidemics," by Sonja Sandberg (Framingham State University). The Ohio Section's summer short course this year was "Symmetry and Group Theory," presented by Doris Schattschneider, at the University of Dayton, June 15–17, 1995. In a new venture, the section instituted a mathematics essay contest for undergraduates. In this initial year, eight papers were submitted and the top three were awarded cash prizes.

The fifty-seventh annual meeting of the **Oklahoma–Arkansas Section** of the MAA was held March 31–April 1, 1995 at Southwestern Oklahoma State University in Weatherford, Oklahoma. There were 184 registrants, including seventy-six students. There were seventy-four contributed talks, including twenty-seven student talks and three others delivered at a special session on SUMMA projects, led by William Hawkins and Florence Fasanelli of SUMMA, offered with support from the National Science Foundation. A faculty workshop, "Uses of the Internet for Mathematicians," was led by Gordon Beavers (University of the Ozarks), Kelvin Casebeer (Southwestern Oklahoma State University), and William Coberly (University of Tulsa). Radwan Al-Jarrah and Kris Kessinger (Southwestern Oklahoma State University) led a student workshop, "The Mathematics of Approximations." Special paper sessions on graphing calculators and on secondary mathematics education were led by David Lawrence, Sandy Johnson, and John Woods, all of the host institution. The section welcomed Andy Magid (University of Oklahoma) as its invited speaker. His title was "The Fibonacci Decimal and Other Adventures of Linear Difference Equations." David Kay (University of North Carolina at Asheville) was warmly received as the Nathan A. Court Lecturer, speaking on

"Tiling, Lattice Points, and Pick's Theorem." James R. Choike of Oklahoma State University was the winner of the section's third annual Award for Distinguished College or University Teaching of Mathematics. The winner of the section's Award for Meritorious Service was Robert Eslinger (Hendrix College) who was honored for this award at the national joint meetings in San Francisco, January 1995.

The annual meeting of the **Pacific Northwest Section** was held June 15–17, 1995 at Whitman College in Walla Walla, Washington. This meeting celebrated the fiftieth anniversary of the section. MAA President Kenneth A. Ross (University of Oregon), thirty-year member of the section, gave an address, "The History of the Pacific Northwest Section," which focused on some lesser-known and amusing events that have occurred in the section. The general theme of the meeting was mathematical modeling. The program included two short courses, "Mathematical Modeling," presented by Maurice Weir (U.S. Naval Postgraduate School); and "Units from the Interactive Mathematics Curriculum: Elementary Algebra and Intermediate Algebra," by Marcella Laddon (Monterey Peninsula College). "Recognition and Rewards in the Mathematical Sciences" was the topic of a panel discussion. Two invited addresses supported the general theme of the meeting: Martha Siegel (Towson State University), on "Industrial Mathematics in the Undergraduate Curriculum," and Paul Whitney (Battelle Northwest) on a case study of mathematical modelling to estimate the amount of gas trapped in nuclear waste in tanks at the Hanford, Washington nuclear waste storage site. Seventy-eight people participated in the meeting, offering twenty-one contributed papers of which five were by students. The section awarded its Award for Distinguished College or University Teaching to Richard Koch (University of Oregon) and has selected its nominee for the 1996 Certificate of Meritorious Service. At its banquet, the section recognized its members who have belonged to the MAA for twenty-five years or longer. The section's student chapter coordinator presented a plaque to the state winner of the AHSME. May 5–6, 1995, the Pacific Northwest Section offered a short course on "The Scientific Workplace," presented by Carol Walker and Darel Hardy, at Se-

attle Central Community College. The Pacific Northwest Section is the home of newly-elected MAA Governor-at-Large Gloria C. Hewitt (University of Montana).

**The Rocky Mountain Section** held its annual meeting jointly with the COLOMATYC (Colorado Mathematical Association of Two Year Colleges) and the CCTM (Colorado Council of Teachers of Mathematics) on April 21 - 22, 1995, at the University of Southern Colorado, in Pueblo, Colorado. There were 212 participants, 26 of whom were students. The program included a minicourse, *Teaching Environmental Numeracy to Undergraduates*, by Martin Walter (University of Colorado) and a poster session on Curriculum Reform. Patricia Hauss (Arapahoe Community College) led a COLOMATYC session titled "Proposed Changes and Additions to the Core Curriculum," and Frieda Holley (Metropolitan State College of Denver) moderated the panel discussion, "Mathematics Education in 1995: A Kindergarten through University Interaction." Martha J. Siegel (Towson State University), editor of *Mathematics Magazine*, gave the keynote address, "Industrial Mathematics for Fun and Profit." A. Duane Porter (University of Wyoming), the winner of the section's 1994 Distinguished Teaching Award presented the Distinguished Teaching Award Lecture, "Slates, Blackboards, Whiteboards, Overheads, Computers, Multimedia: Can We Possibly Survive in Such a Changing World?" MAA Polya Lecturer, Carl Pomerance (University of Georgia) spoke on "Witnesses for Composite Numbers," and Dr. Siegel spoke again at the banquet, on "'Populating' the Mathematics Classroom." The Rocky Mountain Section has just approved a grant program for projects within the section which address the section's new Mission Goals. At its business meeting, the section approved guidelines for this grant program. The section is working on a program under Thomas E. Kelley (Metropolitan State College) that will bring its MAA Student Chapters together each fall to get acquainted and to start these groups working early in each academic year. The section has granted funds to Jim Loats (Metropolitan State College of Denver) for CMERL (Colorado Mathematics Education Resource List), which is a list of speakers and other resources in math-

ematics education in Colorado. Section Governor Celestino G. Mendez spoke at the section's business meeting and at two meetings of the section's MAA department representatives about plans at the national level to revitalize that program.

**The Seaway Section** held its fall meeting November 3-4, 1994 at the Rochester Institute of Technology in Rochester, New York. The meeting attracted the largest attendance ever for a Seaway Section meeting, drawing over three hundred people, including ninety students. The section's spring meeting was April 22-23, 1995, at Hobart and William Smith Colleges in Geneva, New York. Workshops at the two were "Teaching Calculus using *Mathematica*," by RIT faculty members Richard Orr, Rebecca Hill, and Patricia Clark; and Maurino Bautista's (Rochester Institute of Technology) workshop, "Teaching Linear Algebra with Technology." The annual Harry M. Gehman Lecture was "A Tangled Tale," presented by William W. Menasco (University of Buffalo). Other invited addresses were "Similarities between Taylor Series and Fourier Series," by Deborah Tepper Haimo (University of Missouri at St. Louis); "The Modelling Thread in the West Point Curriculum," by Frank Giordano (USMA, West Point); and "Chaos and Complications for the Forced Pendulum," by John Hubbard (Cornell University). A special event, "Applied Mathematics: Modelling Reality," was offered for undergraduates, funded by the EXXON Foundation. Included were a session for student papers and a workshop on mathematical modeling led by Frank Giordano (USMA) and Nelson Rich (Nazareth College). There was also an informational session for undergraduates concerning graduate schools and careers in mathematics. The section presented its Award for Distinguished College or University Teaching of Mathematics to Thomas Rishel (Cornell University). The Seaway Section is the home of Patricia K. Rogers, newly elected MAA Governor-at-Large.

**The Southeastern Section's** annual meeting was held March 31-April 1, 1995, at the University of North Carolina at Asheville. Three hundred seventy-nine people, including fifty-eight students participated. The program included three invited lectures and three short courses;

seventy-six contributed papers; special events for students; a poster session; and the presentation of two awards. Fredric T. Howard (Wake Forest University), section lecturer, presented an invited address, "Bernoulli Numbers." John D. Neff (Georgia Institute of Technology) spoke on "Teaching Is an Art," and Martha Siegel (Towson State University), editor of *Mathematics Magazine*, spoke on "Mathematical Challenges in the Marketplace." The three short courses were: "Introduction to *MAPLE* in Calculus," by Sherry L. Gale and Leigh L. Atkinson (University of North Carolina, Asheville); "Using the TI-85 Graphics Calculator in Collegiate Mathematics," by John Druthirds and Fred W. Dodd (University of South Alabama); and "Areas and Volumes from the Greeks to the Moderns," by Robert L. Bryant (Duke University). The program included the section's first poster session, organized by Mike Perry (Appalachian State University) on instructional uses of computing. Special events for students were a pizza lunch, a TA Rush, and a banana split party. The section presented its Award for Distinguished College or University Teaching to Sylvia Bozeman (Spelman College) and presented a \$100 check to recognize the achievement of Noam Shazeer (Freshman, Duke University) on the Putnam Exam. Shazeer was a member of the history-making 1994 U.S. International Mathematical Olympiad team which placed first in the world in that competition, all six members of the team achieving never-before-achieved perfect scores.

**The Southern California Section** held its fall 1994 meeting on October 22 at California State University, San Bernardino, and its spring 1995 meeting on March 4 at Loyola Marymount University. A highlight of the fall meeting was the surprise visit by Marjorie Rice at the invited lecture, "Ingenious Mathematical Amateurs: M.C. Escher (Artist) and Marjorie Rice (Homemaker)," by Doris W. Schattschneider (Moravian College), at which Ms. Rice was received with a standing ovation. At the spring meeting, the section was pleased to welcome students at a special student poster session. Eighteen students representing nine colleges and universities presented seventeen posters. The section is pleased at the level of student participation in section meetings; at the spring meeting it held a special discussion on new

student-centered activities. The section presented its Award for Distinguished College or University Teaching of Mathematics to Kuen Hung Lee (Los Angeles Trade Technical College) and its Award for Distinguished Service to Barbara J. Beechler (Pitzer College). Professor Beechler was also honored in recognition of this award from the section at the 1995 joint meetings of the MAA and AMS in San Francisco. Also see the report of the Northern California Section above.

The **Southwestern Section** held its annual meeting at the University of Texas at El Paso, April 7–8, 1995. Although it was a small meeting, with fifty-nine people present, all enjoyed it. The program included a tour of the new computing complex at the Northwest Center of El Paso Community College. Donald J. Albers (associate executive director/director of publications and programs, MAA) gave the invited address, "Bringing up Baby," in which he shared pictures of the El Paso of the old Wild West, only to discover later that there had been a real train robbery, complete with masked bandits, just outside El Paso on the day of his talk. David Pengelley (New Mexico State University) presented the banquet address, "Here Is What I Have Found: Sophie Germain's Forgotten Number Theory Manuscripts." There were nine contributed papers. The section's Award for Distinguished College or University Teaching of Mathematics was presented to William D. Kaigh (University of Texas at El Paso), who also gave two talks at the meeting: "Least-Squares Regression Games," and "Major League Baseball Betting." John Hagood, Janet McShane (Northern Arizona University), and Simon Bernau (University of Texas at El Paso) gave a workshop on calculus reform, "The CCH Approach." McShane, incoming chair of the Southwestern Section, also gave the lecture, "Resultants—An Old Classical Algebraic Tool."

The seventy-fifth anniversary meeting of the very active **Texas Section** of the Mathematical Association of America took place March 30 through April 1, 1995, at Baylor University, in Waco, Texas. Concurrently, Baylor University was celebrating its 150th anniversary. A record-setting 406 people attended, 145 of whom were students. Highlights of the meeting included the first sale of the 406-page, hard-

bound section history, *A Seventy-Five Year History of the Texas Section of the Mathematical Association of America, 1920–1995*, by Professor R.G. Dean (Stephen F. Austin State University); presentations of the section's Distinguished Service Award to four members: Professors Dale R. Bedgood (East Texas State University), R.G. Dean (Stephen F. Austin State University), Charles R. Deeter (Texas Christian University), and John F. Lamb, Jr., (East Texas State University). Professor Frank Jones (Rice University) was the recipient of the Section's 1995 Distinguished College or University Teaching of Mathematics Award. John H. Ewing (Indiana University) gave the Pólya Lecture, "Listening to Your Computer." Other invited addresses were given by MAA President Kenneth A. Ross (University of Oregon), Virginia M. Warfield (University of Washington), and the 1994 winner of the section's teaching award, Montie Monzingo (Southern Methodist University). There were two short courses and a student workshop, all free: the short courses were "Harvard Calculus," by Ray Cannon and Eugene Tidmore (Baylor University), and "Interactive Teaching of Mathematics," by Virginia M. Warfield (University of Washington). Ronald Morgan (Baylor University) conducted the student workshop, "The Putnam Exam: Tough Math is Fun!" For students, an alternative to the section's banquet at the meeting was a pizza and puzzle party. At the meeting, MAA department representatives enjoyed a breakfast presided over by the governor of the section. There was a forum and a luncheon for chairs of departments. Section member and former MAA President Leonard Gillman (University of Texas) led the section-by videotape, from his piano at home—in singing "Happy Seventy-fifth Birthday, Texas Section of the MAA." During the year, the section's Student Chapter Coordinator, Ron Barnes (University of Houston–Downtown) used funds provided by a grant from the Exxon Education Foundation to hold special programs on the campuses of two universities in the section to share ideas for programs and activities and to attract student participation in chapter events. The section contributed \$400 this year to the awards program of AHSME.

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### Kutztown University Department of Mathematics and Computer Science

Tenure-track Assistant Professorship in Mathematics for Fall 1996. Position involves teaching elementary and/or secondary mathematics, mathematics education courses at the graduate and undergraduate levels, as well as teaching undergraduate mathematics courses. Requirements include a Doctorate in Mathematics, or in Mathematics Education with a Master's degree in Mathematics and a strong background in Mathematics beyond the Master's degree level; at least three years of full-time teaching experience and teaching certification at the secondary school level in the United States; extensive experience in the use of technology in the teaching of mathematics; demonstrated excellence in teaching; evidence of ongoing scholarly growth and the potential to make contributions in teaching, program and curriculum development, research, publication and service to the University and the community-at-large; experience in supervision of secondary-level student teachers in desirable. Send letter of application, a current resume, official graduate and undergraduate transcripts, three current letters of recommendation and copies of available publications by March 15, 1996 to: Search Committee Chair, Department of Mathematics and Computer Science, Kutztown University, Kutztown, PA 19530.

Kutztown University is an Affirmative Action/Equal Opportunity Employer and actively solicits applications from qualified women and minority candidates.

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A one year leave replacement, possibly two (with possible renewal), position(s) in the Department of Mathematics and Computer Science beginning August 1996. Ph.D. required in mathematics. Ability to teach some computer science an advantage. A commitment to quality instruction of undergraduates is essential.

Denison University is a liberal arts college of



## Notice to Employment Advertisers

The Board of Governors of the MAA is asking departments that are considering hiring temporary faculty to one-year positions to convert these to multi-year positions if at all possible. In addition, those departments that plan to hire temporary faculty for the next 5-10 years are urged to work with their administrations to convert these temporary positions to tenure-track positions.

It is our belief that the repeated hiring of temporary faculty not only impedes the career development of the young mathematicians holding these positions, but also increases the work load of permanent faculty. An individual in a one-year position must begin searching for a new job every October. He or she does not have the time and energy, and, indeed, can hardly be expected, to contribute to the life of the department and of the institution.

It is our hope that those departments that have been forced to hire temporary faculty on a regular basis will be able to work with their administrators in order to reduce or eliminate this practice.

1800 students located in a village of 4,000 seven miles from Newark (population 50,000) and 25 miles east of Columbus, Ohio. The Department of Mathematics and Computer Science offers B.A. and B.S. degrees in mathematics and computer science.

Send resume and transcripts of graduate work to Dr. Joan Krone, Chair, Department of Mathematics and Computer Science, Denison University, Granville, Ohio 43023. Also ask three persons who know you well to send reference letters in support of your application.

Applications will be processed until the position is filled.

### Director of Developmental Mathematics Arts and Sciences INDIANA UNIVERSITY NORTH- WEST

Position duties include direction of the Developmental Mathematics program and teaching an average of 9 credit hours per semester, primarily introductory level mathematics courses. Applicant must show a strong commitment to teaching, primarily at the developmental level. Minimum requirement is a Master's degree in Mathematics or Mathematics Education. Work experience should include teaching at the developmental level at a college or university. Send a letter of application, resume, three letters of reference, and original transcripts to: Search and Screen Committee, Department of Mathematics and Actuarial Science, Indiana University Northwest, 3400 Broadway, Gary, IN 46408. Application deadline: March 15, 1996. Indiana University Northwest is an Equal Opportunity/Affirmative Action Employer.

### University of Nebraska at Kearney Assistant Professor, Tenure Track Mathematics

Teach various undergraduate and graduate math-

ematics courses; pursue scholarly endeavors, and be involved on committees in the Department of Mathematics and Statistics. Required: Doctorate in Mathematics or Mathematics Education; strong commitment to excellence in teaching and scholarship; productive research; and strong interpersonal and communicative skills. Preferred: Background in the use of technology in the teaching of mathematics. Starting Date: August 1996. Salary is competitive. The University provides retirement options and a flexible benefits program at minimal cost to the employee. Review of applications will begin February 19, 1996 and continue until the position is filled. Send letter of application, transcripts, vitae, and three letters of recommendation to: Dr. Lutfi Lutfiyya, Chair Mathematics Search Committee, Dept. of Mathematics and Statistics, University of Nebraska at Kearney, Kearney, NE 68849-5360. (308) 865-8531. Lutfi@platte.UNK.edu. AA/EO/ADA

### Southern Oregon State College

We invite applications for a tenure-track Assistant Professor position beginning Fall 1996 (Ph.D. by Sept. 1, 1996 required). While preference will be given to applicants having expertise in Geometry or Combinatorics, the most important qualification is a strong commitment to excellence in teaching undergraduate mathematics. Equivalent of one year collegiate math teaching required. Duties include a 12 hour teaching load, advising, maintaining an active professional development program, and sharing in departmental responsibilities. Starting salary is \$31,782. Completed applications received by March 29, 1996 will receive first priority, but position will remain open until filled. Please arrange to have three letters of recommendation, vita, a statement of teaching philosophy, a description of other professional goals, and a short summary of any teaching evaluations sent to: Dr. Kemble Yates, Search Committee Chair, Dept. of Mathematics, SOSC, Ashland, OR 97520. SOSC is an AA/EO Employer committed to developing an inclusive

multicultural community.

### Oral Roberts University

The Department of Mathematics and Computer Science invites applications for a tenure-track position in mathematics education starting August 1996, at the rank of assistant professor. A doctorate is required, but strong candidates with teaching experience who are in the dissertation stage will be considered. Substantial teaching experience at the secondary level is desirable. Position requires teaching mathematics courses through two semesters of calculus, professional education, and computer literacy for education majors in addition to supervising pre-service and in-service secondary mathematics teachers. Oral Roberts University is a liberal arts university that operates in an evangelical Christian environment. Graduate degrees are offered in Education, Business, and Theology. ORU employs individuals w/o regard to race, sex, age, disability, or status as a veteran. Correspondence or resumes should be sent to:

Debra Olson Oltman, Chair  
Department of Mathematics and Computer Science  
Oral Roberts University  
Tulsa, Oklahoma 74171  
dboltman@oru.edu

### The University of Arizona Department of Mathematics and Program in Applied Mathematics

#### Department of Mathematics

The Department of Mathematics at the University of Arizona offers a broad spectrum of graduate courses and seminars in algebra, analysis, applied mathematics, geometry, mathematical physics, probability, and mathematics education that lead to the degrees of Master of Arts, Master of Science, and Doctor of Philosophy with majors in mathematics. Some course work outside the Department of Mathematics is required for each of these degrees. Both master's degrees require a thesis and can serve as a basis for further study towards a Ph.D. degree. Highly flexible programs in pure and applications-oriented mathematics and mathematics education are offered in the Ph.D. program in mathematics. Completion of course work in major and minor fields and a dissertation presenting the student's original research are required.

#### Program in Applied Mathematics

The Interdisciplinary Program in Applied Mathematics offers courses of study leading to the degrees of Master of Science and Doctor of Philosophy with majors in applied mathematics. Students entering the Program in Applied Mathematics take a one-year sequence of mathematics courses tailored to the needs of applied mathematics. The program offers great flexibility. Both M.S. and Ph.D. candidates are required to complete a certain number of courses outside the mathematics department. Ph.D. students com-

plete a dissertation embodying original research under the direction of a member of the Program faculty. The highly interdisciplinary faculty membership is a major feature of the Program in Applied Mathematics and comprises a large group of distinguished faculty from over fifteen academic departments across the University.

### Workshop for Advanced Undergraduates on Current Ideas in the Mathematical Sciences

Applicants of superior quality will be among the students invited to the Tenth Annual Workshop for Advanced Undergraduates on Current Ideas in the Mathematical Sciences, March 2-5, 1996. Limited support is available to attendees. The Workshop is designed to communicate current activities in selected research topics in mathematics and its applications.

### Teaching Assistantships and Fellowships

Teaching assistantships are available for qualified graduate students. The stipend in 1995-96 is \$12,206 and up with a first year teaching load of four classes per semester. Out-of-state tuition is waived, but a registration fee of \$942 is required each semester. Fellowships of \$10,000 for the academic year are available on a highly competitive basis.

### Applications and Deadlines

Application should be made to either the Mathematics Graduate Program or the Graduate Program in Applied Mathematics but not to both programs simultaneously. Forms are available from the addresses below. Application review will begin February 1; therefore all applicants should ensure that their completed applications for admissions and financial aid are received by January 15.

### Graduate Committee

Department of Mathematics

University of Arizona

Tucson, AZ 85721

Telephone: (602) 621-2068

<http://www.math.arizona.edu/>

### Graduate Committee

Program in Applied Mathematics

Tucson, AZ 85721

Telephone: (602) 621-2016 or 4664

<http://www.math.arizona.edu/applmath/>

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### Georgetown College

Department of Mathematics, Physics and Computer Science

Applications are invited for a tenure track position in mathematics to begin Fall 1996, probably at the rank of assistant professor. Applicants must have a Ph.D. and exhibit excellence in teaching and continued scholarly activity. Candidates who have demonstrated teaching excellence will be

rank higher in our selection process.

Georgetown College is a private, liberal arts college located in the Bluegrass region of Central Kentucky, 12 miles south of Lexington. It is the oldest Baptist college west of the Allegheny mountains and serves approximately 1,200 undergraduate students.

Send applications, including resume and three letters of reference, in hard copy to Charles N. Boehms, Senior Vice President and Academic Dean, 400 East College Street, Georgetown, Kentucky 40324.

Women and minorities are encouraged to apply.

### Old Dominion University Department of Mathematics and Statistics

Applications are invited for two tenure-track positions starting August 1, 1996. It is expected both positions will be filled at the Assistant Professor level however, should a suitable applicant be found, one may be filled at the associate professor level. Requirements include a doctoral degree, demonstrated success or strong potential in research, and a commitment to effective undergraduate and graduate teaching. Preference will be given to candidates with research interests in some branch of discrete mathematics or operations research. Candidates for at least one of the positions should have a strong background in computation and an interest in high performance computing. Applicants should submit a resume and three letters of reference to: J. Mark Dorrepaal, Chair, Search Committee, Department of Mathematics and Statistics, Old Dominion University, Norfolk, VA 23529-0077. Screening of applications begins February 29, 1996 and will continue until the position is filled. Old Dominion University is an affirmative action, equal opportunity institution and requires compliance with the Immigration Reform and Control Act of 1986.

### Chairperson Position Department of Mathematical and Information Sciences

#### Sam Houston State University

The Department of Mathematical and Information Sciences invites applications or nominations for a Chairperson, effective July 1, 1996, at the Associate Professor or Professor rank. Applicants must have a terminal degree in computer science, mathematics, mathematics education, or mathematical statistics (or a combination thereof); the position normally includes a one course teaching load per semester. Preference will be given to candidates that can provide evidence of academic administrative talents, an established record as a scholar, teacher, researcher, and previous success in extramural funding. The candidate will possess and interest and ability for imaginative leadership affecting the future direction of a growing and diverse department. The applicant must have a commitment to support the faculty in all aspects of teaching, grant work, and research;

preference will be given to candidates whose interests are compatible with areas of active interest among the faculty.

The department is comprised of 38 faculty (10 in computer science, 17 in mathematics, 7 in mathematics education, and 4 in statistics). Degrees offered include the B.A., B.S., M.A., and M.S. degrees.

Sam Houston State University, a member of the Texas State University System, has approximately 13,000 students and 500 faculty. It enjoys the advantages of picturesque and historical Huntsville, Texas (rated as one of the best small cities in America), in close proximity to the Houston Metroplex (60 miles south of campus).

Review of applications and nominations will begin January 15, 1996 and will continue until the position is filled. Salary is competitive and commensurate with experience and qualifications. To apply, send a letter of application, full curriculum vitae, and four letters of reference to: Chairperson Selection Committee, Dept. of Math & Info Sci., Sam Houston St. Univ., Huntsville, Texas 77341. Committee e-mail address: [search@galois.shsu.edu](mailto:search@galois.shsu.edu); additional general information may be viewed online at <http://galois.shsu.edu/~webpages/search/html>.

Sam Houston State University is an Equal Opportunity and Affirmative Action Employer.

### Pittsburg State University

Anticipates one year temporary appointment with possible reappointment up to three years. May become tenure earning. Appointment begins August 19, 1996. Qualifications: Doctorate in Statistics, Probability, or related field preferred. A.B.D. considered. Preference for college teaching experience and Bachelor's in mathematics with graduate work in mathematics. Experience and interest in use of computer technology in instruction and statistics desirable. Responsibilities: Primary responsibilities are teaching of Elem. Statistics and some upper level statistics. Mathematics and graduate statistics courses may be assigned depending upon qualifications. Scholarship and academic service are required. Salary is from a base of \$30,000. For first consideration send letter of application, resume, and names of five references with addresses and telephone numbers to Elwyn H. Davis, Chairman, Department of Mathematics, Pittsburg State University, Pittsburg, KS 66762 by March 15, 1996. One reference must be a supervisor. Additional information may be requested at a later date. Search will continue until position is filled.

**Mathematics** Northland College, a private, liberal arts, environmental college, seeks applicants for a position in the Department of Mathematics for Fall 1996. Teaching responsibilities are seven courses over a 4-4-1 academic year in the area of statistics, with emphasis on an introductory course serving majors in environmental studies, sociology, psychology, biology, business/economics, and education. Ph.D. in mathematics preferred;

masters degree in statistics considered. This is a one year position with option for renewal. Send letter of application, resume, and three letters of reference by March 15, 1996 to: Mathematics Search Committee, Office of the Dean, Northland College, Ashland, WI 54806-3999. Equal employment, affirmative action employer.

### The State University of New York College at Potsdam

The State University of New York College at Potsdam, the oldest higher education institution in the State University of New York, invites applications for an anticipated full time tenure track position effective September 1, 1996, at the rank of assistant professor. Long recognized as one of the leading public colleges in the United States, SUNY Potsdam preserves a tradition of excellence in the liberal arts, music and teacher education. Responsibilities of the position are to teach twelve hours per semester of undergraduate and first year graduate courses. Required qualifications are a Ph.D. in any area of mathematics with a strong interest and preparation for teaching undergraduate major mathematics courses. In addition some preparation in statistics is desirable though not essential. An application which must include a letter of interest, a statement of the applicant's philosophy of teaching, a vita, three letters of recommendation describing teaching experience and abilities, and a transcript (a copy is acceptable) should be sent to Cheryl Chute Miller, millercc@potdam.edu, Math Department, SUNY Potsdam, Potsdam, NY 13676. Application review will begin February 15, 1996, and continue until the position is filled. SUNY Potsdam is an equal opportunity affirmative action employer committed to excellence through diversity.

### Salisbury State University Mathematical Sciences Position

Applications are invited for a tenure-track Assistant Professor position starting 15 August 1996. A Ph.D. in mathematics is required with specialization in computer algebra, computational algebra or computational geometry. Undergraduate research is a priority of the Department and the successful candidate should be committed to its principles. Preference will be given to candidates who can originate ways to blend mathematics and computer science. Candidates must have a commitment to excellence in teaching, scholarly development and service, and be able to communicate effectively in spoken and written English.

Salisbury State University has as its mission to be the selective undergraduate institution within the University of Maryland System. The University is located in a rural area close to ocean beaches and the Chesapeake Bay and 2 1/2 hours from the metropolitan areas of Washington and Baltimore.

Applicants should submit a cover letter including a statement of their teaching philosophy, a resume and three letters of recommendation to:

Dr. Homer Austin

Search Committee Chairperson  
Department of Mathematics and Computer Science  
Salisbury State University  
Salisbury, MD 21801

Salisbury State University is an Affirmative Action/Equal Opportunity Employer. Women, minorities, and the disabled are encouraged to apply.

### Messiah College Department of Mathematical Sciences

Continuing full-time faculty position in mathematics and/or statistics. The department offers majors in Computer Science and Mathematics, as well as a minor in Statistics. Ph.D. in mathematics or statistics desired with some experience in teaching. Preference will be given to candidates who can contribute to multicultural, ethnic diversity and/or gender understanding. Messiah College is a Christian college is liberal and applied arts and sciences and is committed to and embracing evangelical spirit rooted in the Anabaptist, Pietist, and Wesleyan traditions. AA/EOE. Submit a letter of inquiry and vita to Dr. Wayne Cassel, Chair, Messiah College, Grantham, PA 17027.

### The Mercersburg Academy Department of Mathematics

The department anticipates two openings for the fall of 1996. Mercersburg is an independent residential secondary school with a strong program in mathematics. For at least one of the positions, the department is particularly interested in candidates who would bring experience with various programming languages. The school is a Macintosh environment into which all students are connected, and the department hopes to strengthen its ability to respond to the range and depth on interest is finds in some students for whom computers have been a part of their young lives for a long time. In general candidates are sought who can teach effectively in a curriculum that moves from Introductory Algebra through the Calculus and Discrete Mathematics in regular course work and into other areas through Independent Study. In addition to teaching, faculty are involved in residential list of the school and participate in extracurricular programs through coaching and advising. Interested candidates should write and provide a resume to Ms. Marilyn Larson, Academic Dean, The Mercersburg Academy, 300 East Seminary Street, Mercersburg, PA 17236 or call (717) 328-6172.

### Pierce College Tacoma, Washington

Anticipated tenure-track positions for Fall 1996 in: **Mathematics** - Teach full range of courses from basic mathematics through differential equations, including calculus, linear algebra, finite mathematics & statistics. **Developmental Math-**

**ematics** - Teach developmental math courses in open learning lab. Teach one structured math class per qtr. Both positions require Master's degree in Mathematics, teaching experience in math (community college level preferred), computer knowledge. For complete job descriptions announcement, call Jobline 206-964-7341 or fax to 206-964-6599. Screening begins Feb. 15, 1995; open until filled. Pierce College, a two-yr. community college, is strongly committed to diversity. AA/EOE.

### Mathematics Learning Center Coordinator

MiraCosta Community College District, located in North San Diego (CA) County, is recruiting for a full-time, tenure-track Mathematics Learning Center (MLC) Coordinator, beginning August 1996. This position's primary responsibility is to teach the self-paces and individualized math courses taught at the MLC, which is a computerized mathematics laboratory. A Master's degree or the equivalent is required. To request an application form and job announcement; leave your name, address, and title of the position on the Job Line Tape (619) 757-2121, ext. 8071; or reply by e-mail on the Internet to jobs@miracosta.cc.ca.us (Website: <http://www.miracosta.cc.ca.us>). The closing date is March 1, 1996.

MiraCosta College is an equal employment opportunity and affirmative action employer and seeks to enhance its staff diversity by specifically inviting and encouraging qualified minorities and women to apply. MiraCosta College, ATTN: Human Resources, One Barnard Drive, Oceanside, CA 92056.

### The University of Tennessee

The Mathematics Department of the University of Tennessee seeks to fill a tenure-track assistant professorship with an Outreach Mathematician (OM).

The duties of the OM will be to foster close relations between the university and the community colleges and/or high schools across the state. Details on the duties can be found on the WWW through the Mathematics Department's home page (<http://www.math.utk.edu/>). Other information on the department and university is also available there.

A Ph.D. in Mathematics is required together with a clear commitment to outreach activities. Some postdoctoral experience is preferred, but not required. Dedication to teaching is paramount. Employment begins August 1, 1996.

We seek a person who will actively pursue grants to conduct workshops for teachers, carry out systematic school visits, become involved in state-wide mathematics education reform, work with the appropriate faculty in the College of Education.

Interested applicants should arrange to have a vita, three reference letters, a statement of accomplishments, qualifications, and plans for outreach

outreach activities, and evidence of quality teaching sent to Professor John B. Conway, OM Search, Mathematics Department, University of Tennessee, Knoxville, TN 37996-1300. Electronic applications are not acceptable. Use of the recent AMS application form is appreciated (see Notices, October, 1995 or the AMS gopher). Review of applications will begin January 1, 1996 and will continue until the position is filled.

UTK is an EEO/AA/Title IX/Section 504/ADA employer.

### Dartmouth College

#### John Wesley Young Research Instructorship in Mathematics

The John Wesley Young Research Instructorship is a two year post-doctoral appointment for promising new or recent Ph.D.'s whose research interests overlap a department member's. Current departmental interests include areas in algebra, analysis, combinatorics, differential geometry, logic and set theory, number theory, probability and topology. Teaching duties of four ten-week courses spread over two or three quarters typically include at least one course in the instructor's specialty and include elementary, advanced and (at instructor's option) graduate courses. Nine-month salary of \$37,000 supplemented by summer research stipend of \$8,222 for instructors in residence for two months in summer. Send letter of application, resume, graduate transcripts, thesis abstract, description of other research activities and interests if appropriate, and 3 or preferably 4 letters of recommendation (at least one should discuss teaching) to Betty Harrington, Department of Mathematics, 6188 Bradley Hall, Hanover, NH 03755-3551. Applications received by Jan. 15 receive first consideration, applications will be accepted until position is filled. Dartmouth College is committed to affirmative action and strongly encourages applications from minorities and women.

### Valparaiso University

#### Department of Mathematics and Computer Science Valparaiso, IN 46383

Located one hour from Chicago loop. Pending budgetary approval, tenure-track, assistant professor of mathematics, beginning August 1996. Doctorate in mathematics desired, required for tenure. Teaching experience preferred; background in combinatorics or experience in preparing secondary teachers a plus, as is familiarity with calculus reform. Duties include teach 3 courses (12 hours per semester), continued scholarly activity, and service to the department and University. Applications from women and minorities especially encouraged. Candidates should be willing to work in a scholarly community committed to Christian higher education and the Lutheran tradition. Send letter of application, statement of teaching philosophy, summary of research plans, and vita by January 15, 1996 to:

Patrick Sullivan, Chair. E-mail: psullivan@exodus.valpo.edu.

### The University of Oklahoma Department of Mathematics

Applications are invited for a tenure-track or tenured faculty position in Mathematics Education starting in Fall 1996. Rank and salary will be commensurate with qualifications and experience. Candidates are required to have a Ph.D. in Mathematics or in Education with a Mathematics specialization, and demonstrated commitment to research in Mathematics Education. A strong background in Mathematics beyond the Master's level is also required. Preference will be given to those whose primary research involves collegiate Mathematics Education, or secondary school teacher training.

The faculty member is expected to carry a teaching load of two courses per semester. Candidates should be capable of directing doctoral students and contributing leadership to the department's active graduate program in Mathematics Education. Responsibilities will include involvement with undergraduate Mathematics courses, and with both undergraduate and graduate courses in Mathematics Education.

The Mathematics Department at the University of Oklahoma offers a Doctoral Degree in Research in Undergraduate Curriculum and Pedagogy. Faculty interests include research in quantitative literacy, undergraduate curriculum and pedagogy, and international comparative Mathematics Education. The Mathematics Department faculty cooperate with the University's College of Education which has an M.Ed. program in Mathematics Education and a Ph.D. program focusing on research in K-12 Mathematics Education. As a University service the Department is also responsible for advising and preparation of some undergraduate secondary Mathematics Education majors, and for providing courses for both elementary and secondary preservice teachers (about 250 and 20 per year, respectively).

Applicants should send a vita, a statement of professional goals, and three letters of recommendation to:

Math Education Search Committee  
Department of Mathematics  
University of Oklahoma  
601 Elm Avenue, Phsc 423  
Norman, OK 73019-0315

Initial screening will begin on January 31, 1996 and continue until the position is filled.

The University of Oklahoma is an Equal Opportunity/Affirmative Action Employer.

Women and minorities are encouraged to apply.

The University of Oklahoma has a policy of being responsive to the needs of dual career couples.

### Fairfield University Department of Mathematics and Computer Science

Fairfield University's Department of Mathematics and Computer Science invites applications for a tenure-track assistant professorship which begins in September 1996. A doctorate in mathematics or statistics is required. Strong evidence of research potential, demonstrated success in classroom instruction and a solid commitment to teaching are essential. The ability to teach mathematical statistics is preferred, but all applicants will be considered. Experience and interest in the use of technology in instruction are desirable.

Fairfield University, The Jesuit University of Southern New England, is a comprehensive university with about 2,900 undergraduates and a strong emphasis on liberal arts education. There are 14 full-time faculty members in the department and approximately 35 majors per year. The picturesque campus is located on Long Island Sound in southwestern Connecticut about 50 miles from New York City. Fairfield is an Affirmative Action/Equal Opportunity Employer. Send a letter of application, a curriculum vitae, and three letters of recommendation, which comment on the applicant's experience and promise as a teacher and scholar to Joan Weiss, Chair, Department of Mathematics and Computer Science, Fairfield University, Fairfield, CT 06430-5195, 203-254-4000, ext. 2516, weiss@fair1.fairfield.edu. We plan to participate in the Employment Register at the AMS/MAA Meetings in Orlando. Full consideration will be given to complete applications received by February 1, 1996.

### TRENTON STATE COLLEGE

#### MATHEMATICS & STATISTICS

**Assistant Professor** - Two tenure track positions to teach 12 hours per semester, including freshmen level courses. Req'd: Ph. D. in mathematics, demonstrated commitment to quality teaching; strong research potential. Preference will be given to candidates in any area of pure mathematics and with post-doctoral experience in teaching and research. Send vita and three letters of recommendation, including at least one letter regarding candidate's teaching ability to: Chair, Search Committee, Department of Mathematics and Statistics, Trenton State College, CN-4700, Hillwood Lakes, Trenton, NJ 08650-4700. Deadline for application: March 1, 1996; review process will begin February 1, 1996. Non U.S. citizens must include a statement of current visa status. Trenton State College is a highly selective institution located on 200 acres, approximately 8 miles from Princeton and 1 hour from New York and Philadelphia. The department currently enrolls over 250 majors in Mathematics, Mathematics Education, and Statistics. To enrich education through diversity, TSC is an AA/EOE.



# New from the MAA

## Calculus: The Dynamics of Change

A. Wayne Roberts, Editor Notes

*A must for anyone who teaches calculus! Presents the current thinking about how calculus should be taught.*

January of 1995 marked the tenth anniversary of the calculus reform effort initiated by the Sloan Foundation-sponsored Tulane Conference on Calculus Instruction in 1986. The proceedings of that conference were published in *Toward a Lean and Lively Calculus*, and clarified in a second volume, *Calculus for a New Century*, published by the MAA in 1987. By 1990 foundation support had produced a number of projects that the MAA's Calculus Reform and First Two Years (CRAFTY) committee summarized in its publication of *Priming the Calculus Pump: Innovations and Resources*.

As the tenth anniversary of the movement approached, CRAFTY felt it was time to say something conclusive about the state of calculus teaching today. This present volume is the result of that effort.

The opening essay, "A Modern Course in Calculus", will show you the themes that the committee believes should characterize a modern calculus course, both in terms of teaching and content. Although this statement is not intended to be a prescriptive guide, it will give you solid information to help you decide whether or not your department is in line with current thinking, or even if it wants to be. For instance:

- The notion that a course should get off to a fast start. Students have been told throughout the secondary curriculum that "You'll see the reason for this when you get to calculus." It's time to make good.
- Instructors should focus on applications that they understand and are enthusiastic about. The goal should not be to just to solve the problem at hand, but to understand the methods of calculus that need to be used, and to apply those methods to new problems.
- A calculus course cannot be modernized simply by finding a way to make use of graphing calculators or computers. Their proper role is as a tool for experimenting, discovering, illustrating, or substantiating. They should be used to develop intuition and insight, not as a tool

to crank out answers to larger and more complicated exercises.

- Students should move comfortably between symbolic, verbal, numerical, and graphical representation of mathematical ideas.
- Students should be able to give clear explanations of why things work the way they do, what they mean, and when they are used.
- When we evaluate students we must take into account how they work on extended projects, their contribution to the group, their knowledge of the proper use of technology, their ability to write mathematics, and the initiative they take to do independent reading.

The four main sections of the book describe the vision of those who have developed materials, offer guidance to departments considering a change, discuss methods of assessment, and describe the effect of calculus reform on other courses in the mathematics curriculum. Taken altogether, this is intended as a handbook for change.

**Catalog Code: NTE-39/FOC**

ISBN-0-88385-098-2; 172 pp., 1995

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# Calendar

## National MAA Meetings

**August 10–12, 1996** Annual Joint Summer Meetings, University of Washington–Seattle, Seattle, WA. Board of Governors Meeting August 9, 1996

**January 9–7, 1997** Eightieth Annual Meeting, San Diego, CA. Board of Governors Meeting January 8, 1997

**January 7–10, 1998** Eighty-first Annual Meeting, Baltimore, MD. Board of Governors Meeting January 6, 1998

## Sectional MAA Meetings

**ALLEGHENY MOUNTAIN** April 12–13, 1996, Indiana University of Pennsylvania, Indiana, PA

**EASTERN PA & DELAWARE** April 13, 1996, Millersville University, Millersville, PA

Fall 1996, Delaware State University, Dover, DE

**FLORIDA** March 1–2 1996, Florida Power Corporation, St. Petersburg, FL

**ILLINOIS** March 1–2 1996, Illinois Wesleyan University, Bloomington, IL

**INDIANA** March 29–30, 1996, Butler University, Indianapolis, IN

October 26, 1996, Rose–Hulman Institute of Technology, Terre Haute, IN

Spring 1997, Franklin College, Franklin, IN

**INTERMOUNTAIN** April 19–20, 1996, Mesa State College, Grand Junction, CO (joint meeting with Rocky Mountain Section)

**IOWA** April 26–27, 1996, Cornell College, Mt. Vernon, IA

**KANSAS** April 19–20 1996, McPherson College, McPherson, KS

**KENTUCKY** March 29–30, 1996, Murray State University, Murray, KY

**LOUISIANA–MISSISSIPPI** March 1–2 1996, Southern University, Baton Rouge, LA

February 28 – March 1, 1997, Millsaps College, Jackson, MS

**MD–DC–VA** April 12–13, 1996, Randolph–Macon College, Ashland, VA

**METRO NEW YORK** May 5, 1996, C.W. Post College, Greenvale, NY

May 3, 1997, Mercy College, Dobbs Ferry, NY

**MICHIGAN** May 10–11, 1996, Siena Heights College, Adrian, MI

**MISSOURI** April 12–13, 1996, Southeast Missouri State Univ., Cape Girardeau, MO

Spring 1997, Missouri Western State College, St. Joseph, MO

Spring 1998, Southwest Missouri State University, Springfield, MO

**NEBRASKA–SOUTHEAST SOUTH DAKOTA** April 19–20, 1996, Univ. of Nebraska–Kearney, Kearney, NE

**NORTH CENTRAL** April 1996, Hamline University, St. Paul, MN

**NORTHEASTERN** June 7–8, 1996, Hampshire College, Amherst, MA

November 22–23, 1996, University of Massachusetts–Boston, Boston, MA

**NORTHERN CALIFORNIA** March 2, 1996, Sonoma State University, Rohnert Park, CA

**OHIO** April 12–13, 1996 University of Akron, Akron, OH

October 26, 1996 Denison University, Granville, OH

**OKLAHOMA–ARKANSAS** March 22–23, 1996, Westark Community College, Fort Smith, AR

**PACIFIC NORTHWEST** March 9, 1996 Reed College, Portland, OR

**ROCKY MOUNTAIN** April 1996, Mesa State College, Grand Junction, CO (joint meeting with Intermountain Section)

**SEAWAY** April 12–13, 1996, Elmira College, Elmira, NY

November 8–9, 1996, SUNY College at Geneseo, Geneseo, NY

**SOUTHEASTERN** April 12–13, 1996, University of Alabama–Huntsville, Huntsville, AL

**SOUTHWESTERN** April 1996, Northern Arizona University, Flagstaff, AZ

**SOUTHERN CALIFORNIA** March 2, 1996 University of San Diego, San Diego, CA

**TEXAS** March 28–30, 1996, Texas Tech University, Lubbock, TX

Spring 1997, Texas Lutheran College, Seguin, TX

Spring 1998, Southern Methodist University, Dallas, TX

**WISCONSIN** April 12–13, 1996, University of Wisconsin–Platteville, Platteville, WI

Spring 1997, University of Wisconsin–River Falls, River Falls, WI

## Other Meetings

**April 19–20, 1996** Joint spring MAA meeting of the Rocky Mountain and Intermountain Sections, Mesa State College, Grand Junction, CO. Anyone wishing to present a paper should have the request and abstract in by April 1. Preregistration will be accepted until April 10. For information, contact Carl Kerns & Clifford Britton, Program Co-chairs; (970) 248-1702 or (970) 248-1859; fax: (970) 248-1324; e-mail: cbritton@mesa5.mesa.colorado.edu.

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